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ORIGINAL RESEARCH ARTICLE

A Qualitative Investigation on Sources of Health Information in Chinese and Vietnamese American Groups with Limited English Proficiency

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Introduction: Limited English Proficiency (LEP) communities, which constitute approximately 8% of the US population, face significant disparities, including healthcare access, health literacy, and culturally sensitive care. As seen during the early days of the COVID-19 pandemic, effective public health communication into these communities is challenging. Few studies have characterized where LEP Asian groups source their health information from. A better understanding of health information sources can improve the efficacy of public health outreach programs to these communities.

Methods: Using qualitative methods, we worked with two community centers that serve LEP groups in the California Bay Area to hold focus groups with individuals (N = 23) who speak Cantonese and Vietnamese. We followed an interview guide asking open-ended questions about sources of health information pertaining to physicians, the internet, and the media. These focus groups were held over 2 h at facilities run by community partners. Interviews were transcribed and coded for thematic analysis.

Results: Themes of 1) Physicians and Barriers to Access, 2) The Internet and Social Media Algorithms, 3) Traditional Ethnic Media, and 4) Community and Social Support were identified. Across both groups, the primary sources of health information were language-concordant primary care physicians. Regarding media sources of health information, the Vietnamese group relied less on newspapers and more on watching YouTube, most often Voices of America. The Mandarin- and Cantonese-speaking groups regularly received health information from newspapers as well as local television stations.

Conclusion: When using YouTube, this group watched health videos that were recommended by the YouTube algorithm, rather than specifically seeking out videos and channels. Future steps in our research include quantitatively characterizing health information consumption behaviors and testing specific media interventions targeted toward specific LEP groups.

Key Words: health Information ▪ limited English proficiency ▪ Asian American ▪ qualitative research

As of 2019, 8% of the U.S. population over age 5 have Limited English Proficiency (LEP), meaning they speak English less than 'very well' and are dependent on other languages for communication.[1] These leading languages among LEP communities are Spanish (16.3 M), Chinese (1.8 M), Vietnamese (0.89 M), and Korean (0.55 M).[1] LEP status is associated with experiencing more harmful social determinants of health, including healthcare access, unemployment, housing insecurity, and food insecurity.[2] Compared to individuals with English proficiency, LEP correlates with inferior health status in studies that estimate self-reported health.[3,4] Within healthcare settings, individuals with LEP receive fewer screening tests,[5] lack consistent visits,[6] receive lower quality care,[7] and face difficulties in obtaining health-related information.[7]

These disparities were further exacerbated during the COVID-19 pandemic when LEP communities disproportionately experienced increased COVID-19 prevalence and higher mortality rates than their English-speaking counterparts.[8] Besides the underlying social inequities mentioned earlier, these outcomes were at

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POPULAR SCIENTIFIC SUMMARY

• Individuals with limited English proficiency were interviewed at centers in the Bay Area to assess where they get sources of health information in the post-pandemic era. Cantonese- and Vietnamese-speaking participants most commonly obtained health information from YouTube and their language-concordant physicians and also relied on ethnic media sources in the form of TV and newspapers.

least partially attributable to poor public health communications that failed to reach these communities.[9] Early in the pandemic, LEP communities received conflicting information about protective health behaviors, faced discriminatory sentiments widely reported in the media, and had to consult multiple sources for accurate information.[10] Previous studies have characterized sources of health information in LEP groups,[11–17] however, most date prior to the COVID-19 pandemic and sampled populations in different geographies that lead to different findings.

In addition, certain events may have prompted shifts in patterns of health information sources. This includes the advent and continuous growth of social media platforms in recent years. However, these platforms have also served as sources of misinformation as witnessed during the COVID-19 pandemic when the propagation of vaccine conspiracies spread with the help of internet algorithms.[18] These processes warrant further investigation into how LEP groups access health information. This study aims to employ qualitative measures to explore the most up-to-date trends in sources of health information in LEP groups settled in the California Bay Area to best inform future interventions targeted at addressing this need. With this in mind, the specific research questions this study sought to explore included: 1) How do LEP groups primarily access sources of health information, 2) What barriers might they encounter when seeking these sources, and 3) How do they actively overcome or circumvent these barriers to health information?

METHODS

This study was approved by Stanford University's Research Compliance Office on Human Subjects (IRB 71508).

Several community centers in the California Bay Area that serve ethnic communities were contacted for participation in the study. Self Help for the Elderly and the Vietnamese American Service Centers agreed to participate in the study. A method of participatory sampling recruited patients at these centers, and flyers were posted on the site that advertised study details and planned meeting dates. All participants underwent informed consent procedures in which they were told participation was voluntary, and that they would receive $10 gift cards as compensation. In total, 23 participants (Table 1) aged 42–87 (avg = 71.2) agreed to partake in the study. In order to determine English proficiency, participants were asked what languages they spoke and how well they spoke English, if at all. If they reported that their first language was a language other than English, that they only spoke some English, or if they spoke a language other than English during the interview, participants were assigned LEP status. If participants reported that they spoke English very well and spoke in English during the interview, they were deemed English proficient.

Table 1. Demographics of participants

Demographics	Number (%)
Gender	
Male	6 (26.1)
Female	17 (73.9)
Age	
Age, average + SD	71.26 ± 9.45
LEP status	
Has LEP status	20 (87.0)
English proficient	3 (13.0)
Language spoken	
Cantonese	10 (43.5)
Vietnamese	9 (39.1)
English	3 (13.0)
Mandarin	1 (4.4)
Total	23

Abbreviations: LEP = limited English proficiency; SD = standard deviation.

Data included a series of audio-recorded in-depth (n = 3) and two sets of focus group interviews (n = 20). Overall sample size was low, but following the guidelines of adequate sample size for thematic analysis,[19] the data were rich and varied enough within our focus groups that meaningful conclusions could be reached. Translators consisted of research team members, third-party volunteers, and staff at the community centers. Interviews were conducted in a semi-structured manner in line with the goal of exploratory research practices. General questions asked participants about sources of health information, where they might come across health information on media platforms, and their thoughts on a provided article related to these topics. Individual interviews ranged from 20 to 30 min and focus group interviews 60 to 90 min. Researchers used the secure platform Zoom to audio record the interviews. Data were stored on password-protected and encrypted devices that only the research team could access. Interview recordings were transcribed verbatim and relied on the translator's English interpretation of what participants said, and direct translation of what participants spoke in languages other than English was not carried out.

Thematic analysis[19, 20] was selected as the theoretical framework for the interpretation of the data in line with an exploratory, introductory approach to the research question of this study. A 6-step process for theme development[20] including 1) familiarization of data, 2) generating initial codes, 3) searching for themes, 4) reviewing themes, 5) defining and naming themes, and 6) producing the report was carried out by the research team. Research members completed steps 1 and 2 individually, while steps 3–5 were worked on collaboratively during team meetings. Research team consensus determined the finalized themes. This approach most closely mirrors a coding reliability approach to thematic analysis,[19] in which themes generally map as a summary of responses to data collection questions. Inductive and deductive approaches[20] informed theme development (themes were both based on familiarization with the data and shaped by the researchers' background knowledge on the subject). Reflexive elements of thematic analysis also helped drive theme development. The study design employed reflexive elements of data collection,[19] in which semi-structured interviews allowed for the natural experience of participants' interactions with the world to come to light, instead of sticking to a rigid interview structure that often stifles the nuance of lived experience. Reflexivity was also practiced when data gathered early in the research process guided questions and during later in-depth interviews (e.g., researchers were initially naive to YouTube as a prominent health information source until revealed at first interviews). Overall, the study maintained a semantic realist approach[18] to analysis, in which surface level interpretations of the data inspired theme development. This falls in line with our exploratory aims for the study where we want to assess sources of health information among participants. Further analysis into the depth and complexity of language is not required for these purposes.

RESULTS

Physicians and barriers to access

A majority of participants reported relying on their primary care physician (PCP) for health information. Overall English proficiency was low, three participants were English proficient, and 20 had LEP and spoke a language other than English in the interview (1 Mandarin, 9 Vietnamese, and 10 Cantonese) (Table 1). This correlates with PCP language concordance reported by 17 participants.

Language concordance with a PCP makes overcoming the language barrier in a healthcare setting possible, thus many participants rely on this source. However, despite access to language-concordant physicians, participants encountered difficulties navigating the English-speaking healthcare system.

Many participants needed assistance contacting and scheduling medical appointments. Participants described the challenge of receiving English electronic messages and phone calls. Some reported complete dependence on family members for navigating this step as they are unable to understand communications in English, *'Kaiser will give them a call, but mostly English… When to see a doctor, anything medical, flu shot, whatever. It all comes from family members'* (Male, aged 80, Cantonese). The inability to schedule appointments on their own might make it increasingly difficult for LEP individuals to consult their physicians for health information.

After appointments, participants described receiving additional communications, including visit reports and instructions in English. Some would then have to use personal translation apps or the internet to translate this information for their use: *'Whenever he gets a new medicine, he asks for the product summary to get in paper form all the side effects. And he uses Google translate to learn what those are'* (Male, aged 82, Vietnamese). Not all participants went out of their way to carry out this step, and some simply did not engage with English handouts at all, *'the flyer or something, the English version. So, she will mostly throw it away, she doesn't feel it's important enough, you know'* (Female, aged 72, Cantonese).

Those without language-concordant physicians expressed the necessity and usefulness of translation services. They generally agreed that translation services were useful to communicate complex medical information, '*They're saying translators are really necessary because as good your as your English could be, there's like so many medical terms that you can't possibly expect them to know. So, translation is the best way to get the point across*' (Female, aged 74, Vietnamese). Some participants felt confident enough to forego utilizing a translator but reserved using them for important scenarios like receiving a diagnosis, '*but (if) it's something like really involving some big conversation… they have the interpreter available*' (Female, aged 70, Cantonese).

In several in-depth interviews, which were conducted in a mix of English and Mandarin, participants described their frustration with the quality of translator services '*… sometimes they only do the pure translation, and they doesn't really understand medical issues… it is not quite accurate at making the translation*' (Female, aged 73, Mandarin). Another participant agreed with this scenario, '*maybe it is hard to translate the medical language … Even the doctor will say something and the translator will say (something different)*' (Female, aged 42, Mandarin). A participant who did not have a language-concordant physician and relied on translation for each visit also expressed the inadequacy of the translation service provided '*he's not really clear enough. Sometimes (he) has a question and doesn't know how to ask and they (the interpreter) didn't get the right word*' (Male, aged 80,

Cantonese). This presents another barrier to accessing accurate health information.

Still, quantity in addition to quality was another concern for participants utilizing translator services. One patient said *'… for telehealth visits for checkups and follow ups there's a shortage of translators. So there's not always a translator…'* while also voicing uncertainty about determining the accuracy of the provided translation service, *'she doesn't understand a lot of what's happening… the general sense of if she (is) doing good or no'* (Female, aged 80, Vietnamese). Another participant agreed that healthcare systems *'need to have more people providing translation services'* (Female, aged 73, Mandarin).

The internet and social media algorithms

Most participants do not directly search for online health information on search engines such as Google. Only a few participants claimed they employ internet searches to seek health information, '… *So whenever she has medical problems, she looks online*' (Female, 73, Mandarin). Internet proficiency varied among participants, at one extreme, a particularly adept participant explained how he leveraged internet information to inform his healthcare visits: '*he Googles a lot, and he knows all the tests. So he tells him, doctor, I need a chem 7*', and he also claimed that '*it's more in-depth to do their own research through translate than what the doctor will tell you*' (Male, aged 82, Vietnamese). Other participants did not exhibit this level of information seeking and internet use proficiency. Access to the internet presented a first-line barrier to online health information. Not all participants had smartphones to access the internet, '*I don't go online. I have basic flip phone' and rely on family members instead 'And if I need something online, my daughter or my son do it for me'* (Female, aged 86, English).

Not all participants trusted the internet, and many deferred to their doctors instead of accessing health information online '*Let's say sometimes. Not everything online is true… Especially as far as health concern. I rather go to my doctor*' (Female, aged 86, English). Even when viewing health information online, participants displayed hesitancy in trusting information and often used their own judgment to determine credibility, *'I don't really believe everything I read. I will (use) different resource…'* (Female, aged 42, Mandarin). Despite this, across almost all interviews, participants cited YouTube as a prominent source of health information. YouTube searches were a commonly cited method for obtaining personalized information, and the Vietnamese focus group mainly described this, *'We are searching. We go on the YouTube and we see which one is talking about cancer and doctor talking'* (Female, aged 73, Vietnamese) and *'She's saying she watches a lot of different (YouTube) channels. A lot of doctors have different specialties. She has a specific condition, so she watches videos related to her condition'* (Female, 71, Vietnamese). Vietnamese participants also reported following health content from a specific YouTube Channel called Voices of America (VOA), *'VOA channel on YouTube. So there's like Vietnamese doctor that has a YouTube channel. And she talks about different diseases. It is called VOA'* (Female, aged 80, Vietnamese).

Alternatively, Cantonese-speaking participants described how YouTube videos were recommended to them and disseminated in an algorithmic manner. When asked about the names of YouTube channels that they watched, participants had trouble recalling unique channel names, instead: *'No special one (channel) but when they pop up… they seem to know your taste or something'* (Female, aged 72, Cantonese) and *'…mostly YouTube… They seem to know what you like, (and) what you want to watch. So there will just pop up… no specific channels'* (Female, aged 61, Cantonese). When participants described receiving health information this way, the type of information seemed to be less specific to their conditions and more related to general health information, *'… YouTube, just like everybody. Just whatever pop up, mostly it's for the health and exercise'* (Female, aged 70, Cantonese).

Chinese participants reported WeChat as a common communication platform that they accessed health information through. One participant described an arrangement where their physician communicated with them through WeChat, *'So actually her doctor will send all the information from WeChat… The WeChat actually, mostly everything is 100% Chinese. The WeChat, 100% Mandarin, with the like Chinese characters. So, she understand everything… So mostly its scheduling, pick up, pharmacy pick up and WeChat. And annual checkup, everything, and maybe some flu shot information, she (the doctor) will report that on the WeChat'* (Female, aged 74, Cantonese). Vietnamese participants shared less vivid examples but still mentioned they might come across health information on applications such as *'Messenger… And email… Yellow… Viber'* (Female, aged 73, Vietnamese). These quotes highlight the unique platforms different ethnic groups use to communicate and promulgate health information across social circles.

Traditional ethnic media

Both groups, Chinese and Vietnamese, also received health information from non-English, ethnic media sources. This included TV, radio, and newspaper channels. Mandarin and Cantonese participants reported the news site and newspaper Sing Tao as a source of information, a newspaper originally founded in Hong Kong that now has local divisions across the US including San Francisco. Chinese participants commonly reported watching a nightly TV channel, *'the KTSF news channel the 26 channel. They get the information from*

the special, I think every night they have some special segment or something about the exercise or the health or whatever. So she get information from there' (Female, aged 70, Cantonese).

In general, Vietnamese participants seemed to access newspapers less, *'She reads it from time to time… they don't read newspapers as much' (Multiple Participants, Vietnamese).* They also did not come to a common consensus on a single source of news compared to Chinese participants, and they mentioned accessing a variety of Vietnamese news sources from time to time, including CaliToday and Nguoi Viet Daily News. CaliToday is a local Vietnamese-speaking newspaper based in San Jose California, close to where the interviews took place. Vietnamese participants also watched TV channels for health information, '*Health-related (TV) channels. They're telling about like, what to eat for a healthy lifestyle*' (Female, aged 69, Vietnamese). They did not report specific channel names for these sources; however, as previously mentioned, VOA served as a trusted news source for many participants.

Community and social support

As community center members, participants exchanged health information with each other and passively came across health information at these sites. This was common to both Chinese and Vietnamese groups. One participant was particularly generous in helping others access help information when they were unable to do so on their own, *'they talk to me, and I would not advise them, but I would tell them, this is what I think… (if) you cannot find a doctor tell me your question. I'll ask my doctor. I'll tell you guys so you know we help each other'* (Female, aged 86, English). Health information was on display throughout the center, *'She comes here for exercise class every morning, and there's a TV. And there's a doctor talking about a lot of different health conditions on the TV. Some of them are conditions related to her, she has, and it's very helpful. And she likes watching it every day'* (Female, aged 74, Vietnamese). One participant even claimed that her community center was her main source of health information, *'all the information… come from Self Help for the Elderly'* (Female, aged 67, Cantonese). Community centers play a key role in helping LEP individuals access and learn about programs and resources, directly provide raw information, and provide additional social support.

Several participants reported friends and family as sources of health information. These interactions may happen in person, at home, or over specific social media apps described earlier. Besides providing this resource, friends and family crucially provide additional support in helping LEP individuals navigate and access the healthcare system.

DISCUSSION

We identified similar broad categories of sources of health information compared to related studies on LEP groups.[11–17] Availability and ranking in priority of sources of health information between studies seems to vary by geographic and demographic factors. Our sample of the LEP population contained all Asian Americans, more specifically Chinese and Vietnamese elders. Recent research has called for the disaggregation of ethnic groups that fall into the 'Asian' racial/ethnic population group due to the heterogeneity of this category and the unique health disparities that each group faces.[21] In the United States, Asian Americans consist of more than 20 ethnicities from East, South, and Southeast Asia.[21] This highlights the need for future studies to consider the diverse populations and their unique needs that compose ambiguous, all-encompassing labels like 'Asian' or 'LEP'. One of our contributions includes work on Vietnamese populations that, despite being a prominent ethnic group in California (3) and the 4th largest Asian American subgroup,[21] are underrepresented in research. To our knowledge, our work is the first to study sources of health information among Vietnamese Americans in over a decade.[22]

A majority of Cantonese and Vietnamese speakers with LEP consult their PCP for health information. A similar study on immigrants in Western Canada found that participants, a majority of whom held college degrees, preferred the internet and social circles over physicians as sources of health information.[13] Our results are likely explained by demographic and geographic differences, like the high proportion of language-concordant physicians among our sample (17/23). This is corroborated by research that suggests that California has an adequate supply of PCPs to treat some non-English-speaking subgroups, including Cantonese and Vietnamese speakers.[23] Along these lines, similarly, high rates of language-concordant physicians have been reported by elderly Chinese immigrants in the San Francisco area.[4]

However, a critical aspect we found in our conversations with LEP individuals is the persistent challenges faced in navigating the healthcare system that may hinder access and communication with physicians. An article summarizing the 'patient experience' of individuals with LEP arrives at related conclusions.[24] They found that interpreter services were not always accurate, available, or preferred by patients. Additionally, they coin the term 'system-level language barriers' that describe the challenge language barriers present for LEP patients when interacting with office and administrative staff as well as through written and oral communications. Our findings suggest LEP individuals face great difficulty scheduling appointments, handling healthcare communications on their own, and interpreting English forms and reports. While PCP language concordance

and translation services are necessary, systemic obstacles in the healthcare network demonstrate that they are not sufficient in providing the health information and healthcare needs for LEP groups.

Searching on the internet for health information was not a heavily discussed topic in our focus groups. This appears to align with previous findings[11] that suggest increased age predicts less use of the Internet as a source of health information in Chinese immigrants. However, other studies suggest the internet serves as a main source of health information for LEP groups.[13, 15] We found the social media platform, YouTube, to be a prominent source of health information among Chinese and Vietnamese elderly. Multiple studies show that Asian Americans access YouTube for health information more frequently than other ethnic groups in the United States.[25,26] Our two focus groups described different information-seeking behaviors on YouTube. Vietnamese-speaking participants mentioned searching for specific information related to their own health conditions on YouTube and preferred to view content from a specific channel, VOA, a broadcast service that includes a Vietnamese-language YouTube channel with 1.6 million subscribers. The platform reports having a 'Your Health' weekly program where doctors respond to the audience's healthcare questions. Cantonese-speaking participants did not generate a consensus on accessing a specific YouTube channel but instead implied they passively consume content that YouTube recommends on general topics like health and exercise.

However, as concerns about misinformation on social media and the internet grow, the reliability of health information on YouTube has been called into question. A recent review of 202 papers analyzing the content of some 22,300 YouTube videos[27] flatly claims that YouTube is not a reliable source of health information due to views and likes not being a strong indicator of high-quality, accurate information. Some of our data suggest that YouTube users and their activity on the platform are not completely directed by algorithms, and some participants did report purposefully searching for health content; however, more research is needed to determine how internet algorithms influence the spread of health information and inform decision-making.

Aside from social media, we identified traditional ethnic media outlets that participants accessed health information from. Several of these outlets were local to the region and may have limited reach beyond the California Bay Area; nonetheless, they serve a trusted role in transmitting health knowledge in LEP communities. Vietnamese participants reported relying less on traditional media sources such as newspapers and TV; however, some participants mentioned accessing CaliToday (a local newspaper based in San Jose, California) and Nguoi Viet Daily News occasionally. Sing Tao, a newspaper originally started in Hong Kong but now has international offices in San Francisco, and KTSF Channel,[26] a local television broadcast serving Chinese audiences, served as sources of health information for Cantonese-speaking participants. Other studies have shown ethnic media, in the forms of newspapers, radio, and TV, to be a trusted source of health information for Chinese- and Korean-speaking groups, with older age predicting increased traditional media use.[11,16] Not all research points to these sources as being reliable sources of health information, one content review of Vietnamese print media found it has higher proportions of advertisements and 'pseudo-news' articles compared to English language publications and did not contain health information specific to Asian Americans.[28] Furthermore, reliance on Vietnamese media sources correlates with lower rates of cancer screening for Vietnamese women.[22] These findings potentially call into question the quality of health information in traditional ethnic media sources.

LIMITATIONS

This study has some limitations that partially stem from the limited number of participants available for this study. We only recruited elderly participants and those who spoke Cantonese and Vietnamese – these populations might not be representative of LEP communities due to additional age ranges and languages spoken that were not sampled. Additional LEP groups that could have been reached for the study include Spanish, Tagalog, Hindi, Arabic, and Korean speakers. Data from these groups would be integral for determining the experience of LEP individuals and their interactions with sources of health information but could not be reached due to logistical constraints on our end. This shortcoming limits the generalizability of our findings to LEP groups as an aggregate, although, as we have shown there exists differences in patterns of health information between varying LEP groups, which demands further study. Second, because of the qualitative nature of this study, the English proficiency of the participants was not quantitatively measured. In communicating with our target populations, we used interpreter services, and some of the data may have been lost in communication. The generated responses are from large focus groups with open-ended interviews, and hence, there is a certain degree of variability to them.

CONCLUSION

In our focus groups, we found that most participants primarily received health information from their language-concordant physicians. However, we also observed variations in media consumption behavior, with some participants engaging with YouTube videos, the internet, and traditional ethnic media sources in the forms of TV

and newspapers. Interestingly, these media preferences differed between Vietnamese and Cantonese-speaking groups, suggesting a need for tailored interventions to effectively reach diverse LEP populations. As we move forward, future steps in our research will involve quantitatively characterizing health information consumption behaviors among LEP communities. Additionally, we plan to implement and evaluate specific media interventions targeted toward these groups.

ARTICLE INFORMATION

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REFERENCES

1. Dietrich S, Hernandez E. Language use in the United States: 2019. United States Census Bureau; 2022. Available from: https://www.census.gov/content/dam/Census/library/publications/2022/acs/acs-50.pdf [cited 14 May 2024].
2. Fischer A, Conigliaro J, Allicock S, Kim EJ. Examination of social determinants of health among patients with limited English proficiency. *BMC Res Notes*. 2021;14(1):299. doi: 10.1186/s13104-021-05720-7
3. Sentell T, Braun KL. Low health literacy, limited English proficiency, and health status in Asians, Latinos, and other racial/ethnic groups in California. *J Health Commun*. 2012;17(Suppl 3):82–99. doi: 10.1080/10810730.2012.712621
4. Tsoh JY, Sentell T, Gildengorin G, Le GM, Chan E, Fung LC, Pasick JR, Stewart S, Wong C, Woo K, Burke A, Wang J, McPhee SJ, Nguyen TT. Healthcare communication barriers and self-rated health in older Chinese American immigrants. *J Community Health*. 2016;41(4):741–752. doi: 10.1007/s10900-015-0148-4
5. Jacobs EA, Karavolos K, Rathouz PJ, Ferris TG, Powell LH. Limited English proficiency and breast and cervical cancer screening in a multiethnic population. *Am J Public Health*. 2005;95(8):1410–1416. doi: 10.2105/AJPH.2004.041418
6. Shi L, Lebrun LA, Tsai J. The influence of English proficiency on access to care. *Ethn Health*. 2009;14(6):625–642. doi: 10.1080/13557850903248639
7. Pippins JR, Alegría M, Haas JS. Association between language proficiency and the quality of primary care among a national sample of insured Latinos. *Med Care*. 2007;45(11):1020–1025. doi: 10.1097/MLR.0b013e31814847be
8. Karmakar M, Lantz PM, Tipirneni R. Association of social and demographic factors with COVID-19 incidence and death rates in the US. *JAMA Netw Open*. 2021;4(1):e2036462. doi: 10.1001/jamanetworkopen.2020.36462
9. Findling MG, Caporello HL, Stein RI, Wade CG, Lubell KM, Briseño L, SteelFisher GK. Communications for US populations with limited English proficiency during infectious disease outbreaks: a scoping review. *Health Sec*. 2023;21(6):489–499. doi: 10.1089/hs.2023.0050
10. SteelFisher GK, Caporello HL, Lubell KM, Ben-Porath EN, Green AR, Luo F, Briseno L, Lane L, Sheff SE, Taillepierre JD, Espino L, Boyea A. Getting critical information during the COVID-19 pandemic: experiences of Spanish and Chinese speakers with limited English proficiency. *Health Sec*. 2022;20(4):273–285. doi: 10.1089/hs.2021.0218
11. Islam NS, Patel S, Wyatt LC, Sim SC, Ratnam RM, Chun K, Desai B, Tandon SD, Shevrin CT, Pollack H, Kwon SC. Sources of health information among select Asian American immigrant groups in New York City. *Health Commun*. 2016;31(2):207–216. doi: 10.1080/10410236.2014.944332
12. Li M, Yu Z, Yang BK, Chen X, Kreps GL. Chinese Americans' information sources on, preferred types of, and satisfaction with COVID-19 vaccination. *Vaccines (Basel)*. 2023;11(12):1823. doi: 10.3390/vaccines11121823
13. Mason A, Salami B, Salma J, Yohani S, Amin M, Ihejirika PO, Ladha T. Health information seeking among immigrant families in Western Canada. *J Pediatr Nurs*. 2021;58:9–14. doi: 10.1016/j.pedn.2020.11.009
14. Jessup RL, Bramston C, Putrik P, Haywood C, Tacey M, Copnell B, Cvetanovska N, Cao Y, Gust A, Campbell D, Oldensburg B, Mehdi H, Kirk M, Zucchi E, Semciw AI, Beauchamp A. Frequent hospital presenters' use of health information during COVID-19: results of a cross-sectional survey. *BMC Health Serv Res*. 2023;23(1):616. doi: 10.1186/s12913-023-09504-6
15. Jang Y, Yoon J, Park NS. Source of health information and unmet healthcare needs in Asian Americans. *J Health Commun*. 2018;23(7):652–660. doi: 10.1080/10810730.2018.1500660
16. Oh KM, Kreps GL, Jun J, Chong E, Ramsey L. Examining the health information-seeking behaviors of Korean Americans. *J Health Commun*. 2012;17(7):779–801. doi: 10.1080/10810730.2011.650830
17. Woodall ED, Taylor VM, Yasui Y, Metzger QN, Burke N, Thai H, Jackson JC. Sources of health information among Vietnamese American men. *J Immigr Minor Health*. 2006;8(3):263–271. doi: 10.1007/s10903-006-9331-0
18. Puri N, Coomes EA, Haghbayan H, Gunaratne K. Social media and vaccine hesitancy: new updates for the era of COVID-19 and globalized infectious diseases. *Hum Vaccin Immunother*. 16(11):2586–2593. doi: 10.1080/21645515.2020.1780846
19. Braun V, Clarke V. Conceptual and design thinking for thematic analysis. *Qual Psychol*. 2022;9(1):3–26. doi: 10.1037/qup0000196
20. Braun V, Clarke V. Using thematic analysis in psychology. *Qual Res Psychol*. 2006;3(2):77–101. doi: 10.1191/1478088706qp063oa
21. Obra JK, Lin B, Đoàn LN, Palaniappan L, Srinivasan M. Achieving equity in Asian American healthcare: critical issues and solutions. *J Asian Health*. 2021;1(1):e202103. doi: 10.59448/jah.v1i1.3
22. Nguyen AB, Belgrave FZ. Health sources of cancer screening knowledge for Vietnamese women. *J Cancer Educ*. 2012;27(2):320. doi: 10.1007/s13187-011-0299-7
23. Garcia ME, Bindman AB, Coffman J. Language-concordant primary care physicians for a diverse population: the view from California. *Health Equity*. 2019;3(1):343–349. doi: 10.1089/heq.2019.0035
24. Yeheskel A, Rawal S. Exploring the 'Patient Experience' of individuals with limited English proficiency: a scoping review. *J Immigr Minor Health*. 2019;21(4):853–878. doi: 10.1007/s10903-018-0816-4
25. Oh KM, An K, Lee M, Shin C, Steves SL. Colorectal cancer screening disparities in Asian Americans: the influences of patient-provider communication and social media use. *Cancer Causes Control*. 2023;34(9):813–827. doi: 10.1007/s10552-023-01720-z
26. Langford A, Loeb S. Perceived patient-provider communication quality and sociodemographic factors associated with watching health-related videos on YouTube: a cross-sectional analysis. *J Med Internet Res*. 2019;21(5):e13512. doi: 10.2196/13512
27. Osman W, Mohamed F, Elhassan M, Shoufan A. Is YouTube a reliable source of health-related information? A systematic review. *BMC Med Educ*. 2022;22(1):382. doi: 10.1186/s12909-022-03446-z
28. Nguyen GT, Ashfaq H, Pham TVH. Health information in Vietnamese-American print media: results of a content analysis. *Am J Health Promot*. 2010;25(2):122–125. doi: 10.4278/ajhp.080917-ARB-205