THE SOCIAL DETERMINANTS AND CULTURAL BARRIERS IN OBTAINING A MAMMOGRAPHY SCREENING FOR SOUTHEAST ASIAN IMMIGRANT WOMEN IN LOS ANGELES: AN EXPLORATORY SEQUENTIAL STUDY

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ABSTRACT: Mammogram screenings are X-rays of the breasts used to detect early indicators of breast abnormalities such as cancerous bumps. According to the American Cancer's Society (2023), women starting from the age of 45 are urged to regularly conduct annual mammogram screenings. With the early detection of cancerous masses, patients are able to catch breast cancer in earlier stages before metastasis. The leading cause of cancer death in Asian American women is breast cancer. However, compared to all other racial groups, Asian Americans has the lowest rates of mammogram screenings. Without regular mammogram screenings, there is an increased risk of developing breast cancer undetected. When it is eventually detected, a late screening may result in the need for more invasive treatments and a severe diagnosis. In order to tackle the social determinants and barriers for Asian American women, to obtain regular mammography screenings, Asian Americans cannot be seen as a homogenous group. Often times research studies exclude populations of South East Asian ethnicities, the immigrant population from these countries, and generalize results to all existing Asian American ethnic groups. This solely focuses on the racial identity of patients, but glosses over several health determinants unique to each Asian ethnicity such as income, immigrant status, and education level. Through this exploratory sequential study, both qualitative and quantitative data will be collected to identify the social determinants and cultural barriers Southeast Asian Immigrant women, in Los Angeles, face. Results will set a foundational baseline for public health professionals, explore how to tackle these barriers, and increase mammography screening rates for Southeast Asian immigrant women.

Background and Introduction

According to the American Cancer Society (2022), breast cancer is the second leading cause of cancer death in American women; it is estimated that one in thirty-nine women will die from breast cancer. The main common treatment for breast cancer includes surgery, chemotherapy, hormonal, biological, and radiation therapy (CDC, 2022). Commonly a mammogram screening, breast ultrasound, and/or breast MRI will be referred by a primary care or a mid-level healthcare provider if there is suspicion of a tumor. If a mass is found, further testing will require a biopsy in order to determine if that mass is cancerous. Mammography scans have been proven to reduce deaths from breast cancer among women ages 40 to 74 years, with evidence showing the strongest benefit to women ages 50 to 69 (National Cancer Institute, 2022). With regular mammography scans, women can decrease their risk of breast cancer by early detection of a cancerous mass.

Though Asian American women have been found to consistently have one of the lowest rates of breast cancer diagnoses compared to other ethnic groups overall, it is a leading cause of death among Asian American women. Gomez et al. (2010) found the present generation of certain subgroups of Asian Americans are experiencing unprecedented high rates of breast cancer. For example, in 2022, Asian/Pacific Islanders saw an overall annual 1.7% increase in breast cancer, but individual ethnic subgroups within showed varying differences. While there was no significant increase in breast cancer cases for Japanese women, Korean women saw an annual increase of 2.55% (Navarro et al., 2022). This, in turn, shows the problems with assuming homogeneity across all who identify as "Asian" in medical settings, further contributing to the "Model Minority" Myth.

This myth consists of stereotypes that support the belief that all Asian Americans are all the same (Blackburn, 2019). The generalization of Asians having the lowest rates of breast cancer diagnoses glosses over underrepresented ethnic subgroups who are suffering; this contributes to a misunderstanding that the Asian community is somehow healthier than other Americans. One particular subgroup that gets overlooked are immigrant Asian American women. Immigrant Asian American women are not only found to have a higher risk of breast cancer than U.S.-born Asian American women (Morey et al., 2019) but additionally have worse survival outcomes (Gomez et al., 2010). The immigrant subgroup is consistently seen to have a worse outcome, leaving them even more vulnerable in a foreign country. The question of why still remains unanswered, though data suggests it may be due to higher rates of breast cancer detection among immigrant women (Morey et al., 2019).

Mammogram screenings utilize medical x-rays of the breast to detect any early breast changes before any physical symptoms, such as cancerous lumps, develop. The American Cancer Society recommends women ages 45 to 54, with no prior risk of breast cancer, to get mammograms every year, while women older than 55 are given the option to continue annual or switch to biannual screenings (American Cancer Society, 2022). Women who have regular screenings are able to catch breast cancer in the early stages and therefore need less aggressive treatment. While breast cancer is the leading cancer-related cause of death for Asian Americans and seen in higher rates of diagnosis in immigrants, screening rates for Asian Americans overall are the lowest. In 2021, breast cancer screening rates for Asian Americans were at 64.1%, while non-Asian Americans overall had higher rates at 72.4% (Richard et al., 2021). These statistics are concerning, as lower mammography screening rates increase the risk of each woman living with breast cancer undetected. A later-stage diagnosis leads to a higher chance of "metastasis" and consequently a high number of Asian women dying of breast cancer. Patients' socioeconomic status and racial identity have been seen as a barrier to obtaining cancer screening or even treatment. A retrospective correlation study conducted by Qwaider et al. (2021) with the Massachusetts General Hospital database, found a diverse mix of patients who resided in the lower income areas of

Massachusetts tend to be screened less, received less chemotherapy treatment, leading to an overall worse outcome with their stage III of colorectal cancer diagnosis. This study showed a direct correlation between being lower income and an overall worse cancer treatment no matter which racial group patients belonged in. Further, Sadigh (2022), found that patients living in deprived neighborhoods and being either uninsured or on Medicaid, often were associated with high rates of early discontinuation of treatment. In Navarro et al.'s study (2022), they found an increased odds of surgical delay (30- and 90-day periods after diagnosis) for non-Hispanic Black, and Hispanic patients compared to their non-Hispanic White counterparts. There is a connection between the racial identity and socioeconomic status of patients, with the quality of treatment provided to patients. Studies from above and recent experiments have not specifically studied breast cancer rates in subgroups of Asian American immigrants; we can use the conclusions and infer the same of immigrants who fall in the same socioeconomic categories.

One might be tempted to blame only the social determinants of health for such outcomes. However, the generalization of the Asian category as a homogenous group leads to the overlooking of large cultural disparities across different Asian ethnic subgroups. For example, Asian households in 2019 overall had a higher median annual income ($85,800), compared among all U.S. households ($61,800), but only two Asian subgroups, Indians ($119,000) and Filipinos ($90,400), exceeded the higher annual income (Budiman & Ruiz, 2021). English proficiency also varies between ethnic groups, linked to the time each group arrived in the United States. Older ethnicities like the Japanese (85%), Filipinos (84%), and Indians (82%) were found to have higher proficiency rates compared to younger recently immigrated Asians, such as the Burmese (38%) and the Bhutanese (36%) (Budiman & Ruiz, 2021). These numbers show that the category "Asian" consists of a variety of ethnic subgroups with varying socioeconomic conditions; these which might explain differences in breast cancer screening rates between Asian ethnic subgroups. Therefore, differences may also be seen in the diagnostic rate, and survival rate in Southeast Asian American patients with breast cancer.

There seemed to be additional cultural reasons, and factors connected to immigration which led to lower screening rates, something that cannot be measured by quantitative data concerning socio economic numbers. For example, the participants' lack of knowledge and low-priority attitudes towards mammography screenings in Wu et al. 's study (2008) were connected to a lack of awareness of early cancer detection in their native countries respectively. Even after leaving their native country, there remained a residual lack of knowledge, and urgency towards breast cancer screenings that persisted in their residency as migrated U.S. citizens. Cultural differences can interfere with Asian Americans receiving necessary, and appropriate medical care. In Asian culture, "saving face" is the concept of maintaining social respectability, public family-image, and being self-sufficient through self-sacrifice (Kagawa-Singer et al., 1997). As cited in Kagawa-Singer (2010), the fear of "losing face" caused Chinese and Japanese American participants to hold back clarifying-questions for their doctors. Further, the burden of transportation costs and family caregiving has forced patients to pick more invasive treatment options over breast-conserving chemotherapy. Receiving care from medical professionals, therefore, is viewed as a potential risk for losing face and burdening others. At times the reason seems to be out of the patient's control, at such incidence that a 2015 study found that non-recommendation from a physician tended to be the main reason English-speaking Asian migrants were not screened for cancer, compared to their white counterparts (May et al., 2015). Overall, it has been established there are different ethnic subgroups in the Asian category, all with varying socioeconomic backgrounds and cultural features that may contribute to the low rate of breast cancer screenings among Asian American immigrants.

Rationale and Significance

There is an urgent need for additional research into observed lower breast cancer screening rates in Southeast Asian American immigrants, as the data has established a connection leaving this population vulnerable with a higher risk of late-stage breast cancer diagnosis. The late-stage prognosis of breast cancer often means overall worse outcomes and the need for more invasive treatments. However, not as much is known about the important subgroup differences due to National Surveys' data sample of Southeast Asian Americans/Pacific Islanders (AA/PI) women being too small and frequently aggregated, making available data also conflicting (Peek & Han, 2004). This indicates how Asian Americans tend to have an overall higher-median household income and education levels compared to other racial groups. This indicates that the social determinants of health do not fully explain for the health disparity observed in mammography rates seen in this population (Lee et al., 2021).

Most studies conducted towards Asian American women consist of women from solely East-Asia and major Southeast ethnicities. This leaves a big population of underrepresented Southeast Asian Americans that have not gotten the chance to have their own story told. This study will be conducted in the state of California, as it represents the largest population of Asian Americans to sample in the United States (U.S. Department of Health and Human Services, 2021). The location allows us to get access to the largest population of underrepresented Southeast Asian populations: Cambodian, Philippine, Thai, Vietnamese, Burmese, Malaysian, and Laotian. Using the gap of knowledge of reasoning to explain the health disparity in mammogram rates in immigrant Southeast Asian American women, the study will use a mixed method to explore the socioeconomic and cultural barriers to obtaining a mammography scan.

Research Question and Hypothesis

Asian American women have the lowest mammogram screening rates compared to other ethnic groups, yet breast cancer is the leading cause of cancer-related death in this population. Non-regular screenings increase the risk of undetected breast cancer spreading into late-stage diagnosis and more aggressive forms of cancer to treat. Therefore, when treatment is eventually offered to them, there is a need for more invasive options. Our experiment strives to explore if a combination of socioeconomic factors and cultural barriers are the reasonings why Southeast Asian American immigrants have lower observed breast cancer screening rates, and consequently worsened survival rates in breast cancer patients. Determining an explanation why women are not seeking mammography scans is essential to the first steps in helping them overcome barriers to routine mammogram screenings and bettering the

outlook of breast cancer survival in Southeast Asian immigrants everywhere.

Design

An exploratory mixed-method study will be conducted on Southeast Asian American immigrant women in Los Angeles, California. Per the breast cancer screening recommendations from (HERE), we will only include individuals aged 40 to 65. Women included in the study must have immigrated to the United States from one of the following eligible countries: Cambodia, Philippines, Thailand, Vietnam, Myanmar, Malaysia, and Laos. This group is meant to indicate participating individuals represent those not born in the United States but have lived most of their life here. Ethnicities were chosen due to their large presence in the state of California, the state with the largest population of individual Asians. Participants will not be excluded from the study if they do not speak English; if participants only speak their native language, trained interpreters will be provided to help with the translation process. It is crucial that participants feel comfortable during the study in order to get accurate results. Any mammograms taken in the last 16 months will be immediate grounds for exclusion from the study. Lastly, the setting of the qualitative focus groups requires participants to have lived in the Los Angeles area for the last five years. All these requirements will ensure we can measure accurate data to learn some insight into why Southeast Asian American immigrants tend to have lower mammography screenings.

Phase 1: Qualitative Data

In focus groups, participants will be answering open-ended prompt questions allowing us to observe the discussion between women of the same ethnic group and help us collect qualitative data. The goal of the qualitative section is to define some assessed bounds regarding what factors and reasonings could be behind lower mammography screening rates in Southeast Asian Americans. With open-ended questions, we can assess attitudes towards screenings, as well as insight to cultural barriers to increasing screening rates. Snowball sampling will be used to recruit the specific demographic for which we are searching. Since we are looking for a specific group of Southeast Asian immigrant women, it may be easier to recruit participants if recruited

from a friend or family member. After recruitment, participants will be grouped in focus groups by the origin of the country; each country will have three focus groups and each focus group will have ten women. This means we will have a total of thirty participants for each Southeast Asian ethnic group.

Adapted from Wu et. al's study (2008), one day prior to focus groups being conducted, participants will be asked to write down three barriers they've encountered or known about which have prevented them from getting regular mammograms. Both a bilingual-trained translator, and moderator will be provided for each focus group. Prior to starting, participants will be reminded they are being recorded on both video and audio for the study. Audio recordings will be used by trained appropriate bilingual researchers to produce transcripts of the focus group session. Coding analysis, conducted by bilingual associates and research analysts, will allow us to categorize frequent themes appearing during focus groups. The conversational analysis gives us a fuller-picture which coding analysis alone would not be able to provide us. Looks or pauses when a topic is brought up can be its own unsaid conversation. Themes will be considered relevant if they show up across cohorts in different ethnic groups, or consistently across cohorts within the same ethnic groups. If a theme shows up only within the same ethnic group, we can infer the theme is specific to the ethnic group due to specific cultural values that do not present in other Asian ethnic groups. If a theme shows up across all ethnic groups, we can infer the theme is a shared sentiment across Asian cultures.

Phase 2: Quantitative Data – Cross Sectional

Results from the focus groups will be used to write the quantitative survey questionnaire. Questions will be written inspired by frequent themes that show up in phase 1. For example, if transportation costs are a frequent theme across all ethnic groups, a question regarding transportation costs will be written. The questionnaire will consist of close-ended questions available in all the participants' languages. Questions will be first written in English by the Principal Investigator and bilingual Research Associates. They will then be translated back into any Tagalog, Burmese, Khmer, Vietnamese, Thai, Malay, and/or Lao. A final translation to English will be done to check for accuracy. Sampling will be conducted through quota and convenience sampling; both types

of sampling methods allow for surveys to be sent to the specific demographic needed for this study. Phase 2 sampling will be limited to the Los Angeles area where women for Phase 1 were recruited. Reaching out to local Asian community centers and health organizations to recruit participants in our study. When recruited, the participant is mailed a personalized packet including the following: instructions for the questionnaire and how to return it back to the researchers, the questionnaire itself, paperwork detailing the study's intent and goal, as well as consent forms. The packet will also include information for a website that includes a digital copy of everything. On the website, the participants will have to sign another digital consent form entailing they have read and understand the conditions of the study.

Participants will identify their ethnic identity by picking from either Cambodian, Pilipino, Thai, Vietnamese, Burmese, Malaysian, or Laotian. The questionnaire will also ask additional questions regarding their zip code, age (18-25, 26-35, 36-45, 46-57, 58-67,68-70+), education (High school diploma/GED, Two year College/Associate's Degree, Four year College/Bachelor's Degree, Master's degree, PhD, Other:), income (< 30,000, 30,000-45,000, 45,000-60,000, 60,000- 90,000, 90,000-100,000+), marital status (single, married, divorced, widow), English proficiency (Check whichever one applies to you: can speak English, can read English, can write English), and participant's first language (fill in the blank option). The question will also ask the status of the participants' health insurance status. Is the participant insured? If answered yes, they will be asked if it is public or private insurance then the name of the company.

The surveys that are mailed back to the researchers will be collected and counted until a 70% response rate is reached (Mundy, D. (Ed.), 2002). Statistical analysis of the questionnaire responses will start using the SPSS statistical package for Social Sciences. Chi square analysis (p <0.05) and (CI 95%) will be conducted between ethnicity and each socioeconomic factor (i.e. zip code, age, education, insurance status, income, marital status, and English proficiency) found to be a barrier in getting a mammography scan. A bivariate logistic regression model will also be conducted between ethnicity and each socioeconomic factor. Specifically, we would

also be looking at how long participants have lived here and the age of immigration to see if it is a factor when perceiving the barriers to mammography scans. Lastly, a multivariate logistic regression model will be produced across ethnic groups and socioeconomic factors to determine if the patterns we see in each ethnic group are consistent across all the ethnic groups. With phase 2, we plan to determine if the themes and sentiments of mammogram scans felt by women in Phase 1, apply to the general population of Southeast Asian American immigrants in Los Angeles. Further, we plan to observe any statistical differences in themes quantitatively between different Southeastern Asian ethnic groups.

Ethics

Since participants are all immigrants, we need to be mindful of the language barriers that will inevitably come with the cohorts. As stated above, there will be bilingual interpreters available on site for each cohort. Interpreters will have to obtain a Bilingual interpreter certificate in the appropriate language. There may be medical phrases in English that do not exist in the participants' home language. The translators will be able to fill in the dots where the researchers alone might not be able to. Consent forms will be provided to each participant in both English and the participants' home language; they can choose which form to fill out. Information on the goal of the study and the use of audio and video recordings will be disclosed. Though participants' information will be known to the researchers and associates involved in the study, all participants, most importantly undocumented, maintain confidentiality during and after the experiment. Every researcher and associate involved in the study is trained and required to obtain a Certificate of Confidentiality (CC); the CC ensures the protection of the privacy of the research subjects by prohibiting the disclosure of identifiable, sensitive information in the release of data (National Institutes of Health, 2019). Before the study starts, the study proposal will be sent to the IRB Board at the University of Washington to be IRB approved.

After the study is finished, participants will be emailed a link to a website containing educational materials regarding the importance of mammograms. Since the participants recruited for this study have not had a mammogram, and they are in the age group which suggests they should have one, we determined it was vital to provide them with

educational materials. Giving them resources on mammogram scans and why scans are important to their health may lead this vulnerable population to seek a scan. The website will contain a video like the DVD intervention in Gathirua-Mwangi et al. 's study (2016); the video will go over the risk factors of not getting regular mammogram scans, using visual graphics to show the potential spread of undetected breast cancer. The website will also include guidance on finding the closest and affordable clinic providing scans near participants' houses.

Discussion

Significance

Asian Americans are the least likely ethnic population to be diagnosed with cancer, it is the leading cause of death, and cancer screening rates consistently remain the lowest among the major racial groups (Kwong et al., 2005). These findings are alarming as they are also the largest, fastest-growing racial group living in the state of California. These low screening rates in Asian American immigrants show the importance of studying and making efforts to increase mammography screenings during the rapid increase of recent immigrants (Ryu et al., 2013). Our experimental design shifts to study not only the quantitative side of the social determinants of health but strive to collect qualitative data that will give insight on why low breast cancer screening rates in Southeast Asian Americans occur. Using our data, we can suggest and implement further policies to increase the rates of breast cancer mammogram screenings in this understudied population. Advocating for a required translator for patients as a policy could decrease Southeast Asian women's hesitation to reach for help if language barrier was a major barrier. Barriers and themes identified in this population can also be applied to other women belonging to different demographics concerning breast cancer and/or other cancer types.

Limitations

Limitations of this study should be noted. Due to the specific demographic and non-representative nature of the convenience and snowballing sample, our study findings may not be able to be generalized to the non related demographic (i.e., other racial groups that are not Asian). The participants involved in this study are immigrants from Los Angeles, California and therefore might live at a socioeconomic level than other Southeast Asian American immigrants on a national scale. To overcome this obstacle, future experiments can build from this design to explore breast cancer screening rates from a larger, more representative sample. The explorative design of the study with the addition of bilingual research associates makes the experiment more complex, therefore harder to conduct, and more time consuming. Focus groups require the time of the participants, researchers, and interpreters for all sessions, risking a low retention rate from participants. Since we are asking women in a specific demographic, cultural barriers or responsibilities for their family may also contribute to a low retention rate. The survey questionnaire may be easily ignored and lead to a lower survey response than we expect.

Future Direction & Conclusion

With the data from this study, future intervention and patient navigation programs can be developed to aid Southeast Asian American immigrants to obtain a mammography. In an intervention by lay health advisors and senior aides, Margolis et al. (1998) found that low-income women, specifically Native American participants, were significantly effective in increasing the rates of mammography scans after a year. In Gathirua-Mwangi et al.'s study (2016), when given three intervention options, the DVD intervention was the most effective in mammography adherence rates in African American women; the DVD combined visual and audio aides to explain the spread of breast cancer in the body and how mammography can prevent such a spread. Using the previous studies and collected data as inspiration, we can build an intervention program that utilizes both visual and audio and cultural details from our Southeast Asian American participants. Not only can we increase the rates of mammogram screenings, but patient navigation programs can increase adherence rates of screenings in the primary care setting (Phillips et al., 2011). With the implementation of both patient navigation and intervention programs for Southeast Asian American immigrants, there is hope to increase mammography screenings and learn insight to suggest new policies to bring down barriers to get screened.

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