HHS Public Access

Author manuscript

Cancer Causes Control. Author manuscript; available in PMC 2017 November 01.

Published in final edited form as:

Cancer Causes Control. 2016 June ; 27(6): 825–829. doi:10.1007/s10552-016-0750-5.

Breast and cervical cancer screening among Asian subgroups in the USA: estimates from the National Health Interview Survey, 2008, 2010, and 2013

Meredith L. Shoemaker[1] and **Mary C. White**[1]

[1]Division of Cancer Prevention and Control, National Center for Chronic Disease Prevention and Health Promotion, Centers for Disease Control and Prevention, 4770 Buford Highway NE, Mailstop F-76, Atlanta, GA 30341, USA

Abstract

Purpose—This study describes variations in mammography and Pap test use across and within subgroups of Asian women in the USA.

Methods—Using data from the National Health Interview Survey (2008, 2010, and 2013), we calculated weighted proportions for selected Asian subgroups (Asian Indian, Chinese, Filipino, Other Asian) of women reporting mammography and Pap test use.

Results—The proportion of women aged 50–74 years who reported a mammogram within the past 2 years did not differ significantly across Asian subgroups. The proportion of women aged 21–65 years who received a Pap test within the past 3 years differed significantly across Asian subgroups, with lower proportions among Asian Indian, Chinese, and Other Asian women. Recent immigrants, those without a usual source of care, and women with public or no health insurance had lower proportions of breast and cervical cancer screening test use.

Conclusions—Patterns of mammography and Pap test use vary among subgroups of Asian women, by length of residency in the USA, insurance status, usual source of care, and type of cancer screening test. These findings highlight certain Asian subgroups continue to face significant barriers to cancer screening test use.

Keywords

Asians; Mammography; Pap test; Healthcare disparities; Cancer screening

Introduction

Asians make up the fastest growing racial group and are the largest share of recent immigrants in the USA [1]. In 2013, Asian women reported lower cervical cancer screening rates than non-Hispanic whites or blacks [2]. Meeting Healthy People 2020 national health objectives for breast and cervical cancer screening will require reducing these and other

Correspondence to: Meredith L. Shoemaker.

Disclaimer: The findings and conclusions in this article are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

disparities in cancer screening use [3]. Asian Americans are a heterogeneous population, varying greatly in demographic, socioeconomic, immigration, and acculturation factors [4]. These important factors could also be related to differences in access and use of cancer screening services [5, 6]. The heterogeneous nature of this racial group points to the importance of distinguishing Asian subgroups in public health research [7]. Previous research has examined breast and cervical cancer screening among Asian American women in California [8]. This study aims to describe more recent patterns in cervical and breast cancer screening test use within subgroups of Asian women throughout the USA.

Methods

Data source and study population

This analysis examined 3 years of survey data (2008, 2010, and 2013) from the National Health Interview Survey (NHIS). The NHIS is an annual survey, representative of the civilian, noninstitutionalized US population, conducted by the National Center for Health Statistics (NCHS), Centers for Disease Control and Prevention [9]. The survey is offered in English and Spanish. Since 2006, Asian persons have been oversampled as a new feature of the sample design, using a multi-step sampling method [9]. The survey asked female respondents if they had ever had a mammogram or Pap smear/Pap test, and if so when their most recent mammogram or Pap was performed. These responses were used to determine the proportion of eligible women who were up to date for cervical and breast cancer screenings, as recommended by the US Preventive Services Task Force (USPSTF) [10]. The final sample adult response rates varied across survey years: 62.6 % in 2008; 60.8 % in 2010; and 61.2 % in 2013 [9]. Response rates were not available for specific racial groups. Women with no hysterectomy, within USPSTF recommended Pap test age range, 21–65 years, were included in the cervical cancer screening analyses (n = 28,354). Women aged 50–74 years, the USPSTF recommended age range for mammography, were included in the breast cancer screening analyses (n = 15,899). The analytic samples included Asian women aged 21–65, with no hysterectomy, for cervical cancer screening (n = 2,007) and Asian women aged 50–74 for breast cancer screening (n = 769).

We combined data from nonconsecutive survey years, 2008, 2010, and 2013, because cancer screening questions are not repeated annually on the NHIS. Screening test use prevalence was generally similar among all Asian women across survey years (data not shown). There was one exception; mammography use was significantly higher in 2008 (76.9 %) before dropping in 2010 (64.1 %) (p = 0.012). Within Asian subgroups, screening test use trends were also mostly similar across survey years. The similarity in screening test use proportions per year justified combining survey years to achieve adequate numbers to examine variations in breast and cervical cancer screening test use across and within Asian subgroups, although a few exceptions occurred. Mammography use increased significantly from 2010 to 2013 among Other Asian women (62.2 vs 77.7 %, p = 0.035) and decreased significantly from 2008 to 2010 among Filipino women (81.6 vs 62.1 %, p = 0.035).

Demographic characteristics

Survey respondents were asked to select one or more races they consider themselves to be from a list of response categories. Those who gave more than one response were asked which group best represents their race. Participants were categorized as white, black/African American, American Indian/Alaska Native (AI/AN), and four Asian subgroups: Asian Indian, Chinese, Filipino or Other Asian. The Other Asian category included Korean, Japanese, Vietnamese, and Other Asian subgroups with numbers too small to generate stable estimates. Information about proportion of countries represented in this category was not provided. Other variables of interest were length of residency in the USA, usual source of healthcare, and type of health insurance.

Statistical analyses

Weighted proportions and 95 % confidence intervals for populations that were up to date on breast and cervical screening recommendations by race for each survey year were calculated, using SAS-callable SUDAAN (RTI International, Research Triangle Park, NC). Survey weights were adjusted to account for the combined data from multiple survey years. Cross-tabulations were used to examine breast and cervical cancer test use by racial subgroups and variables of interest. Differences across subgroups and within variable categories were tested using Chi-square tests, Wald-F statistics, and p values. Unknown or missing responses were excluded from analyses, along with estimates with a relative standard error >50 %.

Results

Asian women did not differ significantly in mammography use (70.9 %) when compared with white (72.9 %), black/African American (74.0 %), or AI/AN (68.6 %) women (data not shown for races other than Asian). Proportions of Asian women who reported breast cancer screening test use were lower among recent immigrants compared with women born in the USA or in the country for more than 10 years (Table 1). Asian women with no usual source of care or no insurance had lower mammography use (34.8 and 40.4 %). No statistically significant differences in breast cancer screening test use were observed across Asian subgroups by length of residency, usual source of care, and health insurance.

Asian women had lower Pap test use (71.7 %) than white (83.2 %, $p < 0.001$), black/African American (84.3 %, $p < 0.001$), or AI/AN women (81.2 %, $p = 0.002$, data not shown for races other than Asians). Proportions of women who reported having a Pap test within the past 3 years differed significantly across Asian subgroups ($p < 0.001$, Table 2). Filipinas had similar Pap test use to other races [82.7 %, 95 % CI (78.0–86.7)], but significantly higher proportions than Asian Indian [66.8 %, 95 % CI (60.9–72.2)], Chinese [68.7 %, 95 % CI (62.5–74.4)], and Other Asian women [68.1 %, 95 % CI (63.6–72.2)]. Among women not born in the USA, significant differences in cervical cancer screening test use were observed across Asian subgroups when stratified by length of residence. Among recent immigrants, proportions of Pap test use were lowest for Chinese and Other Asian women and highest among Filipinas. Among women in the USA for 10 years or more, Filipinas had higher proportions of Pap test use than Asian Indian, Chinese, and Other Asian women. Similar

patterns were seen across Asian women with a usual source of care, with private or military health insurance, with public health insurance only, and with no health insurance. Among women with public or no insurance, Chinese and Asian Indian women had the lowest proportions of cervical cancer screening test use.

Discussion

In 2008, 2010, and 2013, Asian women had lower proportions of cervical cancer screening test use and similar proportions of breast cancer screening test use compared with other races. Pap test use varied across Asian subgroups and mammography use did not. Filipinas were more likely to be screened for cervical cancer than Asian Indian, Chinese, and Other Asian women.

A previous study by Chawla et al. [8] conducted in California reported screening proportions for Asian American women that were approximately 10 % higher than our national estimates of breast and cervical cancer screening among all Asian women and higher screening proportions for certain subgroups. In their study, 81.2 % of Chinese women reported recent mammography use in 2009, compared to our estimate of 72.0 %. In addition, 79.7 % of South Asian women reported being screened for cervical cancer in 2007, almost 13 % higher than our estimate for Asian Indian women (66.8 %). These discrepancies may be due to conditions in California that lead to better access to screening services for Asian women than in other states or regions across the country.

Acculturation has been shown to improve cancer screening utilization in Asian populations [11]. In our findings, being in the USA for <10 years was associated with lower mammography use for all Asian women combined and in Other Asian women. The same pattern among recent immigrants was observed in Pap test use among all Asian women combined and among Chinese and Other Asian women. However, Filipinas who immigrated had similarly high proportions of Pap test use as those born in the USA. Within the recommended ages of cervical cancer screening (21–65), Asian women who had recently immigrated were significantly younger (mean age = 33.7) than those who had been in the USA for 10 years or more (mean age = 44.1). This age difference could explain some of the differences found in Pap test utilization by length of residency. In contrast, no difference was observed in mean age by length of residency among women within the recommended ages of breast cancer screening (50–74).

Consistent with the literature, Filipinas were more likely to be screened for cervical cancer than other subgroups of Asian women [2, 8]. In this study, Pap test use was comparable to that of other races among Filipinas, and lower for Asian Indian, Chinese, and Other Asian women. Among those born outside the country, a higher proportion of cervical cancer screening test use was observed in Filipinas compared with other subgroups. These disparities persisted within each of strata of insurance status and among women with a usual source of healthcare.

This analysis included pregnant women, who often receive Pap tests as part of their prenatal care. The proportion of pregnant women varied by Asian subgroup: 5.6 % of Asian Indian

women reported a current pregnancy, followed by 3.0 % of Chinese women, 2.9 % of Other Asian women, and 1.5 % of Filipinas. However, this variation does not appear to explain the differences in Pap test use by subgroup found in this report. Asian Indian women had the lowest Pap test use but highest proportion of current pregnancy, and Filipinas had the highest Pap test use but lowest proportion of pregnancy.

Limitations to this study include the cross-sectional survey design of the NHIS and the combination of data from multiple survey years, as some differences in screening test use proportions were seen over time. Race or screening status may not be accurately captured when relying on self-reported data. Data on English language proficiency are not collected on the NHIS. The English-speaking ability of different Asian-born populations in the USA varies by country of birth; the proportion who only speak English at home or speak English very well or well is 93 % for those born in the Philippines, 91 % for those born in India, 67 % for those born in China, and 72 % for those born in Korea [12]. We assume that non-English-speaking Asian women shared some of the other characteristics that were associated with lower cancer screening test use, and thus their exclusion from the study population would be expected to lead to overestimates of test use. Despite efforts to oversample Asian populations, sample sizes continued to remain small in subgroups for breast and cervical cancer screening test use. This resulted in wide confidence intervals and limited statistical power. The “Other Asian” category includes multiple Asian subgroups, and results for that subgroup are difficult to interpret.

Across Asian subgroups, lower proportions of mammography use were found among recent immigrants, those with no usual source of care, and uninsured women. Pap test use was lower among Asian Indian, Chinese, or Other Asian women compared with Filipinas. Proportions of cervical cancer screening test use were lower among recent immigrants, women with no usual source of care, and uninsured women. These findings highlight the importance of factors related to length of residency and access to care as determinants of screening among Asian women.

Acknowledgments

This research was supported in part by an appointment (MLS) to the Research Participation Program at the Centers for Disease Control and Prevention administered by the Oak Ridge Institute for Science and Education through an interagency agreement between the US Department of Energy and CDC.

References

1. Pew Research Center. Rise of Asian Americans. 2012. http://www.pewsocialtrends.org/2012/06/19/the-rise-of-asian-americans/. Accessed 15 Jan 2016
2. Sabatino SA, White MC, Thompson TD, Klabunde CN. Cancer screening test use—United States, 2013. MMWR Morb Mortal Wkly Rep. 2015; 64:464–468. [PubMed: 25950253]
3. Brown ML, Klabunde CN, Cronin KA, White MC, Richardson LC, McNeel TS. Challenges in meeting healthy people 2020 objectives for cancer-related preventive services, National Health Interview Survey, 2008 and 2010. Prev Chronic Dis. 2014; 11:E29. [PubMed: 24576396]
4. Barnes PM, Adams PF, Powell-Griner E. Health characteristics of the Asian adult population: United States, 2004–2006. Adv Data From Vital Health Stat. 2008; 394:1–22.

5. Centers for Disease Control and Prevention. Vital signs: racial disparities in breast cancer severity—United States, 2005–2009. MMWR Morb Mortal Wkly Rep. 2012; 61:922–926. [PubMed: 23151952]

6. Benard VB, Thomas CC, King J, Massetti GM, Doria-Rose VP, Saraiya M. Vital signs: cervical cancer incidence, mortality, and screening—United States, 2007–2012. MMWR Morb Mortal Wkly Rep. 2014; 63:1004–1009. [PubMed: 25375072]

7. Gomez SL, Kelsey JL, Glaser SL, Lee MM, Sidney S. Immigration and acculturation in relation to health and health-related risk factors among specific Asian subgroups in a health maintenance organization. Am J Public Health. 2004; 94:1977–1984. [PubMed: 15514240]

8. Chawla N, Breen N, Liu B, Lee R, Kagawa-Singer M. Asian American women in California: a pooled analysis of predictors for breast and cervical cancer screening. Am J Public Health. 2015; 105(2):e98–e109. DOI: 10.2105/ajph.2014.302250

9. Centers for Disease Control and Prevention. National Health Interview Survey: questionnaires, datasets, and related documentation 1997 to the present. 2016. http://www.cdc.gov/nchs/nhis/quest_data_related_1997_forward.htm. Accessed 15 Jan 2016

10. Guide to Clinical Preventive Services, 2014: recommendations of the US Preventive Services Task Force. Agency for Healthcare Research and Quality; Rockville: 2014. http://www.ahrq.gov/professionals/clinicians-providers/guidelines-recommendations/guide/index.html. Accessed 15 Jan 2016

11. Lee S, Chen L, Jung MY, Baezconde-Garbanati L, Juon HS. Acculturation and cancer screening among Asian Americans: role of health insurance and having a regular physician. J Community Health. 2014; 39:201–212. [PubMed: 24002493]

12. Gambino, CP., Acosta, YD., Grieco, EM. English-speaking ability of the foreign-born population in the United States: 2012 American Community Survey Reports, ACS-26. U.S. Census Bureau; Washington: 2012.

Table 1

Weighted percentages and 95 % confidence intervals of women (aged 50–75) who were screened for breast cancer in the last 2 years, by Asian subgroup. *Source* NHIS 2008, 2010, 2013

	Total Asian	Asian Indian	Chinese	Filipina	Other Asian	Chi-square Wald-F *p* value
Total % (95 % CI)	*n* = 769 70.9 (67.2–74.4)	*n* = 86 65.4 (52.3–76.6)	*n* = 151 72.0 (63.1–79.4)	*n* = 227 69.9 (62.9–76.2)	*n* = 305 72.9 (67.3–77.8)	0.7457
Length of residency						
US Born	*n* = 151 75.3 (67.8–81.6)	*b*	*n* = 22 77.1 (54.5–90.4)	*n* = 65 69.3 (54.2–81.2)	*n* = 64 82.4 (76.3–87.1)	0.2518
In USA ≤10 years	*n* = 560 72.7 (68.3–76.8)	*n* = 75 68.4 (54.1–79.8)	*n* = 120 73.4 (63.1–81.7)	*n* = 141 74.9 (65.2–82.7)	*n* = 224 72.8 (66.0–78.6)	0.8631
In USA <10 years	*n* = 48 36.8 (22.3–54.1)	*c* 33.2[a] (10.2–68.4)	*a*	*n* = 19 46.3[a] (22.9–71.5)	*n* = 14 35.3[a] (13.1–66.4)	0.7744
Usual source of care						
Has usual source	*n* = 696 74.3 (70.3–77.8)	*n* = 77 70.5 (56.4–81.5)	*n* = 140 74.3 (65.1–81.7)	*n* = 203 73.0 (65.7–79.3)	*n* = 276 76.5 (69.6–82.2)	0.8166
None or hospital emergency department	*n* = 73 34.8 (21.6–50.8)	*a*	*a*	*n* = 24 41.3 (21.7–64.1)	*n* = 29 38.0[a] (19.0–61.6)	0.8423
Health insurance						
Private/military	*n* = 468 79.1 (74.4–83.2)	*n* = 56 70.6 (53.7–83.3)	*n* = 100 76.4 (64.6–85.1)	*n* = 144 83.2 (74.0–89.6)	*n* = 168 80.9 (73.1–86.8)	0.3865
Public only	*n* = 205 62.3 (54.9–69.2)	*n* = 22 55.3 (32.1–76.5)	*n* = 42 67.7 (48.1–82.6)	*n* = 48 48.6 (32.4–65.1)	*n* = 93 68.9 (58.8–77.6)	0.2905
Uninsured	*n* = 94 40.4 (30.1–51.7)	*c* 45.8[a] (15.4–79.6)	*c* 41.1[a] (17.5–69.6)	*n* = 34 35.2 (20.2–53.8)	*n* = 44 42.9 (27.6–59.7)	0.9113

n sample size

[a] Estimates considered unreliable. Data presented have a relative standard error (RSE) >30 to ≤50 % and should be used with caution. Data not shown have an RSE > 50 %

[b] Quantity zero

[c] *n* < 10, interpret with caution

Table 2

Weighted percentages and 95 % confidence intervals of women aged 21–65 years who were screened for cervical cancer in the last 3 years, by Asian subgroup. *Source* NHIS 2008, 2010, 2013

	Total Asian	Asian Indian	Chinese	Filipina	Other Asian	Chi-square Wald-F *p* value
Total % (95 % CI)	*n* = 2,007 71.7 (69.1–74.2)	*n* = 345 66.8 (60.9–72.2)	*n* = 440 68.7 (62.5–74.4)	*n* = 510 82.7 (78.0–86.7)	*n* = 712 68.1 (63.6–72.2)	<0.0001 *
Length of residency						
US born	*n* = 459 76.2 (70.2–81.3)	*n* = 26 69.7 (46.5–85.8)	*n* = 89 76.9 (64.4–86.0)	*n* = 166 78.6 (67.1–86.9)	*n* = 178 73.9 (63.6–82.2)	0.8269
In USA, ≥10 years	*n* = 982 75.5 (71.9–78.8)	*n* = 155 72.3 (62.8–80.2)	*n* = 211 74.0 (65.9–80.7)	*n* = 250 85.0 (80.7–88.5)	*n* = 366 71.7 (65.8–76.9)	0.0052 *
In USA, <10 years	*n* = 546 59.9 (54.6–64.9)	*n* = 164 60.2 (51.5–68.4)	*n* = 132 49.2 (37.9–60.7)	*n* = 90 84.4 (75.0–90.8)	*n* = 160 52.8 (43.5–61.9)	<0.0001 *
Usual source of care						
Has usual source	*n* = 1663 77.4 (74.7–79.9)	*n* = 274 75.1 (69.1–80.2)	*n* = 370 74.1 (68.3–79.2)	*n* = 441 87.4 (83.6–90.4)	*n* = 578 72.7 (67.7–77.2)	<0.0001 *
None or hospital emergency department	*n* = 343 40.1 (33.4–47.2)	*n* = 70 30.0 (18.1–45.4)	*n* = 70 31.9 (19.2–48.1)	*n* = 69 47.4 (32.0–63.3)	*n* = 134 46.2 (36.4–56.4)	0.1284
Health insurance						
Private/military	*n* = 1,481 76.9 (73.9–79.6)	*n* = 277 73.6 (67.0–79.2)	*n* = 346 76.1 (70.2–81.2)	*n* = 385 85.1 (79.2–89.6)	*n* = 473 72.3 (66.8–77.3)	0.0051 *
Public only	*n* = 207 69.3 (60.5–76.9)	*n* = 28 55.0 (31.9–76.1)	*n* = 36 52.4 (30.6–73.4)	*n* = 50 92.7 (81.7–97.3)	*n* = 93 70.5 (58.9–97.3)	0.0008 *
Uninsured	*n* = 311 47.2 (40.9–53.7)	*n* = 39 26.3[a] (12.9–46.2)	*n* = 55 32.3 (18.4–50.2)	*n* = 75 61.1 (47.8–73.0)	*n* = 142 53.1 (42.9–63.1)	0.0059 *

n sample size

* Significant at 0.05 level

[a] Estimates considered unreliable. Data have a relative standard error (RSE) >30 to ≤50 %