Assessing the use of abortion services in Asian populations in New York City, 2008-2015

Introduction

The United States (U.S.) population includes over 18 million Asians[1] and nearly 50% is of reproductive age, 15-44 years.[2] However, little is known about Asians' use of, access to, and experiences with one of the most fundamental areas of sexual and reproductive health: abortion care.

One in four women ages 15-44 years in the U.S. will have an abortion in her lifetime; it is a common experience in the U.S. and a critical component of sexual and reproductive health care.[3] Understanding patterns of abortion use in the U.S. is necessary to begin to illuminate barriers to contraceptive care, changes in service availability, and other structural inequities that may shape differential access to abortion for different groups. Without robust abortion surveillance research in Asian populations, our current understanding of and approach to addressing inequities in abortion care remains incomplete.

Specifically, data on the prevalence of abortion and unwanted pregnancy, as estimated by the abortion rate and abortion ratio, respectively, are rarely calculated for Asian populations in the U.S. For example, national-level abortion data published by the Centers for Disease Control and Prevention[4] as well as the Guttmacher Institute[3] do not provide abortion counts, rates, or ratios for Asians. Instead these data are collapsed into an "other" racial/ethnic group category, despite documented demographic and health differences between Asians and other racial/ethnic groups and within the Asian population.[5-7] In contrast, these measures are consistently updated and monitored for other major racial/ethnic groups. Furthermore, nearly 70% of Asians in the U.S. are foreign-born;[1] yet, these measures also remain non-existent by country of origin or nativity status, factors that have been shown to differentially impact health service use.[8]

This lack of data upholds the harmful "model minority"[9] myth that Asians are a universally successful and healthy group. In contrast, research indicates that a substantial minority of Asians are uninsured, experience linguistic isolation, do not receive comprehensive or culturally competent health services, and face cultural norms of secrecy and silence that may uniquely stigmatize abortion.[10-13] Combined with mounting legal and logistical barriers to obtaining abortion and punitive immigration policies that restrict health coverage for many immigrants,[14] these factors may contribute to differential use of abortion services for Asians, especially between immigrants and non-immigrants.

To help fill this gap in the literature, this study estimates and describes patterns in the abortion rates, abortion ratios, and pregnancy rates of Asian groups in New York City (NYC) from 2008-2015. NYC represents the largest Asian population in any U.S. city, with nearly 15% of the population identifying as Asian, the vast majority (80%) of whom are immigrants.[15] However, despite the size of the Asian population and the city's robust abortion surveillance system, abortion-related estimates for Asian groups in NYC have not been calculated previously. In the current analysis, abortion rates and ratios are presented and compared between: 1) Asians and other racial/ethnic groups; 2) Asians and Asian sub-populations; and 3) immigrants and non-immigrants within Asian populations. Finally, because access to health services may have changed with recent shifts in health care policy (e.g., Affordable Care Act expansion), changes in these measures are also examined over time.

Methods

Study design and key measures

This study used surveillance data from 2008-2015 to construct three measures: the abortion rate, abortion ratio, and pregnancy rate in New York City (NYC) by racial/ethnic groups

and by nativity status. The abortion rate is estimated as the number of abortions per 1,000 women ages 15-49 years; the abortion ratio is estimated as the number of abortions per 100 pregnancies; and the pregnancy rate is estimated as the number of pregnancies per 1,000 women of reproductive age. Each measure was calculated for major racial/ethnic groups (non-Hispanic White, non-Hispanic Black, Hispanic, and Asian) and the five largest Asian ethnic populations in NYC: Indian, Chinese, Japanese, Korean, and Vietnamese. For these subgroups and Asians overall, each measure was also estimated by nativity status: foreign-born (i.e., immigrants) or U.S.-born (i.e., non-immigrants). Asians overall included individuals who reported having origins in the Far East, Southeast Asia, or the Indian subcontinent, including but not limited to the five subgroups disaggregated in this study.

Data sources

Aggregate-level counts of abortions and pregnancies reported between 2008 and 2015 in NYC were obtained from the NYC Department of Health and Mental Hygiene (DOHMH) Bureau of Vital Statistics. The total number of pregnancies include births, spontaneous fetal losses (i.e., stillbirths and miscarriages, if women sought care), and legal induced abortions. Counts of births and spontaneous losses were tabulated from certificates for vital events filed with the NYC DOHMH and include events occurring in or en route to NYC, regardless of individual residency status, during a particular year. The total number of abortions, including surgical and medication abortions, was obtained from data collected in an "Induced Termination of Pregnancy" report, which is completed by health care providers. The municipal health code requires reporting of all facility-based abortions performed in NYC to the DOHMH. According to a recent evaluation and findings from the Guttmacher Institute, NYC's abortion reporting system captures nearly 90% of abortions performed in the city.[16,17]

To avoid small cell sizes and preserve confidentiality, pregnancy data, including abortions, for 2008-2015 were provided in pooled years: 2008-2010, 2011-2013, and 2014-2015. For each interval, data were provided by age group (<20 years; 20-29 years; 30-39 years; and ≥40 years), race/ethnicity (Non-Hispanic White, Non-Hispanic Black, Hispanic, Asian, Indian, Chinese, Japanese, Korean, and Vietnamese) and, for Asians and the five ethnic subgroups, by nativity status (immigrant versus non-immigrant). Due to changes in racial/ethnic categories during the study time period, pregnancy data from 2008-2010 collapse Asians and Pacific Islanders into the same racial/ethnic category; for subsequent years, these groups are disaggregated. However, the small proportion (<1%) of Pacific Islanders living in New York City in 2008-2010 suggests that estimates are still comparable across intervals.[18-21]

Population data on the number of NYC women aged 15-49 years were obtained from the American Community Survey (ACS), a continuously fielded survey by the U.S. Census Bureau that collects detailed information from a representative sample of the civilian non-institutional U.S. population. The Integrated Public-Use Microdata Series (IPUMS)-USA database, provided by the University of Minnesota, was used to obtain 1% samples of the ACS for each year from 2008-2015.[2,18] Annual data were pooled to mirror the year intervals of the NYC pregnancy data. Population distributions by age, race/ethnicity, and nativity were estimated using weighted tabulations of the ACS; these distributions were applied to the total number of NYC women aged 15-49 years, obtained from the NYC DOHMH vital statistics reports, to estimate population counts by these characteristics.

Statistical analysis

Group-specific abortion and pregnancy rates were calculated by dividing the number of events (pregnancies or abortions) in a specific group by the number of women in that same group

in the NYC population and multiplying this figure by 1,000. Group-specific abortion ratios were calculated by dividing the number of abortions in a specific group by the number of pregnancies in that same group and multiplying this figure by 100. Each measure was first calculated and compared by race/ethnicity across the most recent time period (2014-2015). Nativity-specific rates and ratios were then calculated for Asians aggregated and for each Asian subgroup. For each group, the pregnancy rate, abortion rate, and abortion ratio for the foreign-born population were compared to the U.S.-born population. Finally, measures for each racial/ethnic group and by nativity for Asian populations were calculated for 2008-2010 and 2011-2013 and compared to the 2014-2015 estimates to examine changes between 2008 and 2015. Graphical plots were created to visualize trend patterns in each measure by population group.

All pregnancy and abortion rate estimates were age-standardized to the 2011-2013 NYC population of women, and abortion ratio estimates were age-standardized to the population of pregnant women from the same time period. Counts for the reference populations were compiled from the annual Summary of Vital Statistics reports prepared by the NYC DOHMH, Office of Vital Statistics. Given minimal changes to the population of women and pregnancies in NYC between 2008 and 2015, the reference population was chosen from the midpoint interval of this timeframe. All analyses were conducted using Stata version 15.0.

Results

During 2014-2015, the pregnancy and abortion rates for Asian women in NYC were, respectively, 66.8 per 1,000 and 11.0 per 1,000. These estimates were comparable to non-Hispanic White women's pregnancy (62.4 per 1,000) and abortion (11.8 per 1,000) rates in NYC and lower than the rates for non-Hispanic Black and Hispanic women (Table 1). When Asians were disaggregated by ethnicity, the pregnancy rate for Indian (120 per 1,000) and Chinese (70

per 1,000) women was higher than the rate for Asians aggregated, whereas the pregnancy rate for Japanese women (55 per 1,000) and Korean women (35 per 1,000) was lower compared to the overall Asian group. Abortion rates among Indian (26.5 per 1,000), Japanese (14.7 per 1,000), and Vietnamese (11.3 per 1,000) women were higher than among Asians overall, while rates for Chinese (7.6 per 1,000) and Korean (4.5 per 1,000) women were lower. The abortion ratio among Asian women was 19 per 100 pregnancies compared to 22 among non-Hispanic White women, 49 among non-Hispanic Black women, and 33 among Hispanic women. Of the five Asian subgroups examined in this analysis, Indian, Japanese, Korean, and Vietnamese women tended to have higher ratios than the average (i.e., overall Asian group), which included other subgroups that we were unable to disaggregate. (Table 1.)

These data were further disaggregated by nativity status for Asians overall and the five Asian ethnic groups (Table 2). Among Asians overall, the pregnancy rate was lower for U.S.-born women (42.4 per 1,000) compared to foreign-born women (78.2 per 1,000). Similarly, U.S.-born Chinese and Vietnamese women had lower pregnancy rates than their foreign-born counterparts, but this relationship was inverted for Indian, Japanese, and Korean groups. In contrast, within nearly all groups (aggregated and disaggregated Asian groups), the abortion rate was higher among U.S.-born women compared to foreign-born women. The abortion ratio was consistently higher among U.S.-born women across all groups.

Finally, we examined changes over time in the pregnancy rate, abortion rate, and abortion ratio for the major racial/ethnic groups and by nativity status within Asian groups (Table 3 & Figs 1-3). Findings suggest that from 2008-2015, the rates and ratio declined across non-Hispanic Black, Hispanic, and Asian groups in NYC (Figs. 1a, 2a, 3a). A decrease in the rates and ratio were observed for both U.S.-born and foreign-born aggregated Asian populations;

however, the decline appeared to be greater in the foreign-born Asian group with a 15% fall in the pregnancy rate, a decrease in the abortion rate from 16 abortions per 1,000 women in 2008-2010 to 10 per 1,000 in 2014-2015, and a related decrease in the abortion ratio from 19 abortions per 100 pregnancies to 14 (Figs 1b, 2b, 3b). In contrast, among the five U.S.-born Asian ethnic groups, we observed an increase in each of the measures, with the largest annual changes occurring among U.S.-born Indian and Vietnamese women (Figs. 1c, 2c, 3c). The direction and magnitude of the changes over time was not as consistent for foreign-born Asian ethnic groups. Indian women had the largest decrease in the pregnancy rate (119 to 64 pregnancies per 1,000 women) and Chinese women had the largest increase (101 to 183 pregnancies per 1,000 women). With the exception of Chinese women, all foreign-born subgroups had a decrease in their abortion rate over time; the decline was greatest among Korean and Japanese women with changes from 9 to 2 abortions per 1,000 Korean women and 18 to 8 abortions per 1,000 Japanese women. We observed an overall increase in the abortion ratio for foreign-born Indian and Vietnamese women, but a decrease for the other foreign-born groups with the largest change among Korean women whose abortion ratio declined from 30 to 13 abortions per 100 pregnancies (Table 3).

Discussion

This study is the first to estimate pregnancy rates, abortion rates, and abortion ratios for Asians living in NYC, by ethnicity and nativity, achieving greater granularity in these measures than in previous research. To this end, our findings offer a much-needed step forward in the measurement, surveillance, and understanding of abortion use across diverse Asian populations.

Our study found that the pregnancy rates, abortion rates, and abortion ratios differed between Asians overall, Asian subgroups, and other major racial/ethnic groups, demonstrating

the importance of disaggregated data. For example, we found that Asian women overall had lower abortion rates than the three other major racial/ethnic groups. When data were disaggregated, Japanese and Indian populations had higher rates of abortion compared to Asians overall, whereas Chinese and Korean groups had lower rates. Given racial/ethnic variations in pregnancy rates, these findings may reflect differentials in the demand for abortion services; however, they may also suggest that some Asian groups in NYC face greater barriers to obtaining abortion than others. Compared to Asians overall, the abortion ratios tended to be higher for four of the five ethnic subgroups examined in this study, with notable between-subgroup differences. Insofar as the abortion ratio could suggest some level of unmet contraceptive need, these findings may indicate differences in the use of or access to contraceptive care, including preferred methods of contraception, within the Asian population. Indeed, prior research has shown that Asians, overall, have a relatively low rate of contraceptive use, especially effective methods, with differences in contraceptive use within the Asian population previously documented in California.[22,23]

When data were further disaggregated by nativity status, the abortion rate and ratio were generally higher for U.S.-born women compared to immigrant women, among Asians overall and within each subgroup. Although these differences may reveal a differential demand for services by nativity status, they also reflect existing evidence that immigrant women overall are less likely to obtain reproductive health services compared to non-immigrant women.[8] These differences may also be informed by language barriers, which can impede access to health care. For example, Asian immigrant women who have limited English proficiency may be less likely than their U.S.-born counterparts to obtain needed abortion services without multi-lingual provider outreach, in-clinic resources (e.g., consent forms, follow-up instructions), and staff.

Furthermore, low rates of health insurance coverage among immigrant women, including specific Asian groups,[11,24] may impact the affordability and, in turn, use of abortion services.[25] Indeed, a notable proportion of Asian immigrant women work low-wage jobs without health coverage[10] and some may face exclusion from federal or state Medicaid programs due to existing immigration legislation.[14] In NYC, however, where the State provides eligibility-based coverage for sexual and reproductive health services, regardless of immigration status, differences by nativity in the use of abortion services may be less indicative of disparities in health coverage. Still, with ongoing harsh immigration enforcement over the last decade, and increasingly in recent years, Asian immigrants in NYC may be deterred from seeking needed health care, including abortion, which could contribute to the observed differences between immigrants and non-immigrants in their use of services.

Finally, our findings indicate that the pregnancy and abortion rates and abortion ratios among non-Hispanic Black, Hispanic, and Asian women in NYC declined between 2008 and 2015, reflecting national and State-level declines in these measures, as well as overall increases in contraceptive use.[16,26] However, when Asian women were disaggregated by nativity and ethnicity, these declines were not uniform across all subgroups. For example, the abortion rate and ratio generally increased from 2008 to 2015 for U.S.-born Asian groups, whereas the opposite was seen during this time for most Asian immigrant groups. These trends might suggest decreased demand for abortion services among immigrants, given parallel declines in group-specific pregnancy rates, or changes in and increasing consistency of contraceptive use, which could lower the likelihood of unwanted pregnancy. Alternatively, these findings could indicate reduced access to care over time for Asian immigrants. In that case, these trends might suggest underlying structural or social barriers to care potentially related to the immigrant experience,

including the changing social and political climate in the United States. However, more research is needed to better understand the dynamics behind these trends over time.

This study has several limitations. The abortion counts used in this analysis represent only those procedures that occurred in health facilities; thus, abortions occurring outside of a hospital, clinic, or physician's office would not be captured in these data. Although the magnitude of this underreporting is likely to be relatively small, undercounting of abortion could be higher in Asian or immigrant estimates if these groups are more likely than their counterparts to obtain abortions in informal settings.[27,28] Furthermore, pregnancy counts, used to calculate abortion ratios, may suffer from measurement error. In particular, reporting of miscarriage can be incomplete, particularly for miscarriages that occur prior to 20 weeks gestation, with many women who experience a very early miscarriage not necessarily identifying it as such. As a result, total pregnancies are likely to be undercounted. However, it is unlikely that this undercount would differ by racial/ethnic group. The data used for this study were aggregate counts of pregnancy outcomes; we did not have access to individual-level data related to each outcome. As a result, we were not able to examine underlying sociodemographic or health factors, such as income, length of stay in the U.S., or contraceptive history, which might inform differentials in use of and access to abortion services.[3,29] For example, given our limited data, we could not assess whether the observed differences in abortion rates reflected racial/ethnic inequities in access to care or, alternatively, adequate service use that met the varying need for abortion in each group. Finally, these data represent abortion use in New York City, which has a high density of abortion providers and does not have any of the major types of abortion restrictions (e.g., waiting periods, mandated parental involvement, or limitations on publicly funded abortions) often found in other states.[26] To this end, findings from this study on patterns

in abortion use are not generalizable to Asian populations living in other areas of the U.S. Despite these limitations, the findings from this study serve as a valuable baseline for identifying patterns of abortion use in Asian populations in NYC. Compiling and updating this evidence remains particularly critical in the current political environment, in which efforts to restrict abortion may impose a significant burden on both immigrant women and women of color seeking abortion care.[30,31]

Conclusions

To date, most descriptive studies of reproductive health outcomes in the U.S. do not provide separate estimates for Asians or disaggregated by ethnicity or nativity, despite the documented diversity of the Asian population.[32,33] In this study, we use surveillance data to evaluate abortion use across Asian and ethnic subgroups in NYC. We identified differences in use such as higher abortion rates among Indian, Japanese, and Vietnamese groups relative to Asians overall, and generally higher abortion rates and ratios among non-immigrant women compared to immigrant women in all Asian groups. We found a general decline in the abortion rates and ratios from 2008-2015, reflecting national trends during this time. We also identified some consistent differences in these trends between immigrants and non-immigrants within Asian populations. Our findings not only reveal variations and changes over time in service use, but they reinforce the need to disaggregate data; without doing so, we risk ignoring important heterogeneity within the Asian population, with implications for developing community-specific and effective interventions. At the same time, the differences identified in this study—by ethnicity, nativity, and over time—require further investigation that was not possible with our data, which were designed to describe patterns in abortion rates and ratios. Although some of the observed differences may signal differential or changing access to care between racial and ethnic

groups, further research is needed to understand the underlying mechanisms that produce such

differences and the implications for Asian women's access to abortion care.

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Tables and Figures

Table 1. Age-standardized pregnancy rates, abortion rates, abortion ratios among New York City women by race and ethnicity, 2014-2015

Race/Ethnicity	2014-2015		
	Pregnancy rate per 1,000 women	Abortion rate per 1,000 women	Abortion ratio per 100 pregnancies
Non-Hispanic White	62.35	11.71	21.75
Non-Hispanic Black	100.54	49.96	49.03
Hispanic	82.87	27.71	32.60
Asian	66.80	10.99	18.98
Indian	119.64	26.50	23.69
Chinese	69.50	7.63	14.30
Japanese	55.48	14.73	34.26
Korean	34.88	4.46	23.79
Vietnamese	63.75	11.33	25.91

Table 2. Age-standardized pregnancy rates, abortion rates, and abortion ratios among Asian populations in New York City by nativity status, 2014-2015

Race/Ethnicity & Nativity	2014-2015		
	Pregnancy rate per 1,000 women	Abortion rate per 1,000 women	Abortion ratio per 100 pregnancies
Asian			
Foreign-born	78.18	9.91	14.34
U.S. born	42.44	14.72	43.80
Asian disaggregated			
Indian			
Foreign-born	63.76	11.58	19.36
U.S. born	79.78	33.50	44.39
Chinese			
Foreign-born	182.85	14.25	10.42
U.S. born	40.14	11.27	40.52
Japanese			
Foreign-born	49.63	7.85	26.82
U.S. born	75.96	37.75	48.47
Korean			
Foreign-born	32.76	2.21	13.36
U.S. born	40.65	8.63	38.33
Vietnamese			
Foreign-born	68.74	8.76	20.45
U.S. born	49.53	14.88	39.45

Table 3. Trends in age-standardized pregnancy rates, abortion rates, and abortion ratios among New York City women by race/ethnicity and nativity status, 2008-2015

Race/Ethnicity	2008-2010			2011-2013			2014-2015			Annual change (%)		
	Pregnancy rate	Abortion rate	Abortion ratio	Pregnancy rate	Abortion rate	Abortion ratio	Pregnancy rate	Abortion rate	Abortion ratio	Pregnancy rate	Abortion rate	Abortion ratio
Non-Hispanic White	59.34	10.97	20.74	61.28	10.77	20.60	62.35	11.71	21.75	5.1	6.7	4.8
Non-Hispanic Black	131.74	73.22	54.20	110.50	55.16	48.68	100.54	49.96	49.03	-23.7	-31.8	-9.5
Hispanic	108.28	41.36	36.62	86.58	27.58	30.76	82.87	27.71	32.60	-23.5	-33.0	-11.0
Asian	77.60	15.81	22.59	70.21	10.65	17.58	66.80	10.99	18.98	-13.9	-30.5	-16.0
U.S.-born Asians												
Aggregated	46.96	17.36	46.16	47.47	15.26	42.77	42.44	14.72	43.80	-9.6	-15.2	-5.1
Indian	55.02	9.39	20.49	93.35	37.86	44.77	79.78	33.50	44.39	45.0	256.7	116.6
Chinese	36.40	7.69	33.71	43.45	11.93	40.90	40.14	11.27	40.52	10.3	46.5	20.2
Japanese	63.23	16.61	33.21	92.21	40.44	48.68	75.96	37.75	48.47	20.1	127.3	45.9
Korean	29.39	3.56	27.93	50.57	10.23	39.26	40.65	8.63	38.33	38.3	142.1	37.2
Vietnamese	31.35	3.10	19.63	40.94	13.73	45.66	49.53	14.88	39.45	58.0	380.6	100.9
Foreign-born Asians												
Aggregated	92.12	16.00	19.20	83.22	9.86	13.52	78.18	9.91	14.34	-15.1	-38.0	-25.3
Indian	118.77	14.61	13.58	143.85	25.17	18.76	63.76	11.58	19.36	-46.3	-20.7	42.6
Chinese	100.51	8.52	11.43	91.77	6.44	9.38	182.85	14.25	10.42	81.9	67.3	-8.8
Japanese	58.13	17.80	32.53	55.83	7.87	25.83	49.63	7.85	26.82	-14.6	-55.9	-17.6
Korean	41.44	9.43	30.21	32.23	3.49	21.35	32.76	2.21	13.36	-21.0	-76.6	-55.8
Vietnamese	53.98	9.19	18.73	43.19	4.49	11.66	68.74	8.76	20.45	27.4	-4.6	9.1

Figure 1a-1c. Trends in abortion rates by race/ethnicity and nativity

Figure 1a. Abortion rates by major racial/ethnic groups, New York City: 2008-2015

Figure 1b. Abortion rates by foreign-born Asian groups, New York City: 2008-2015
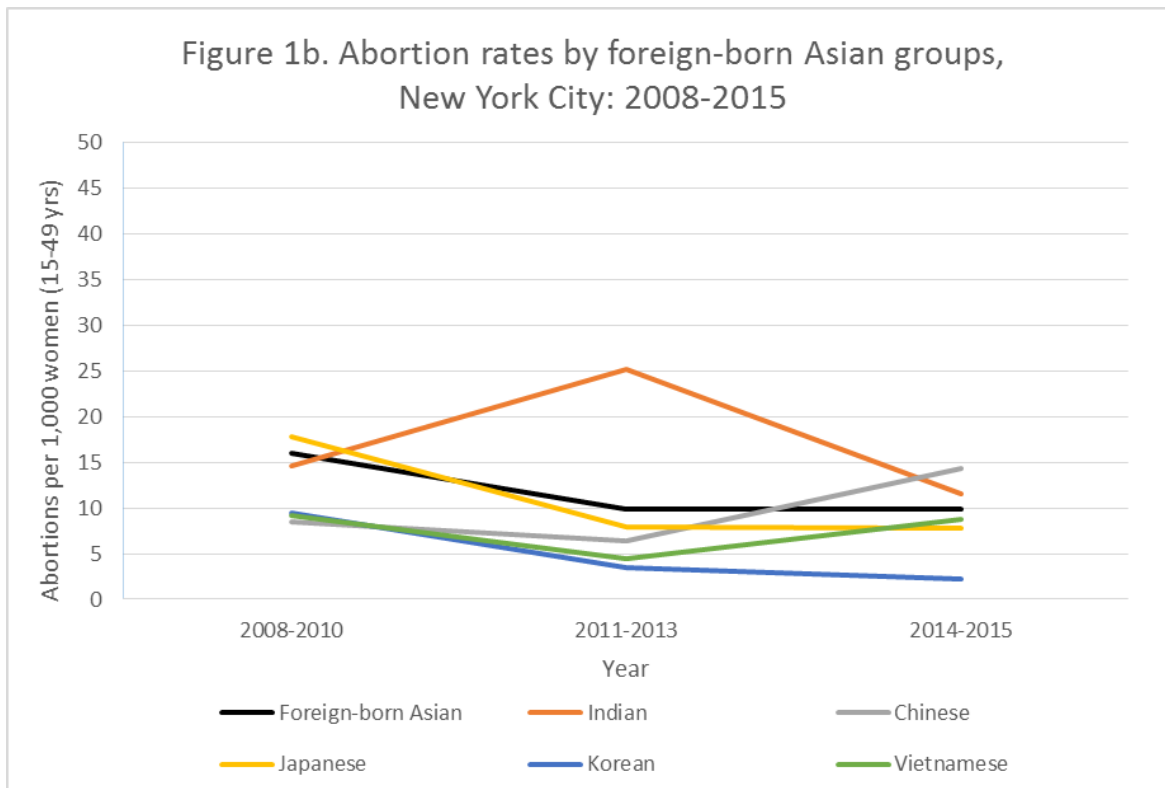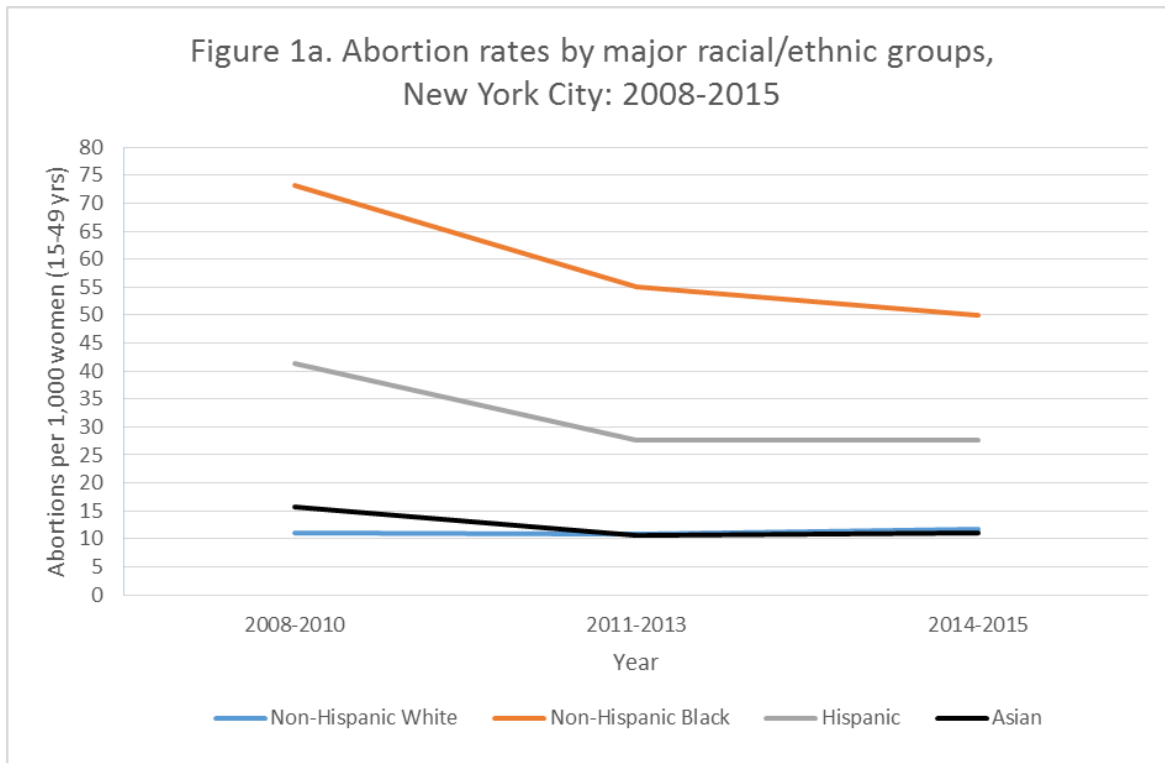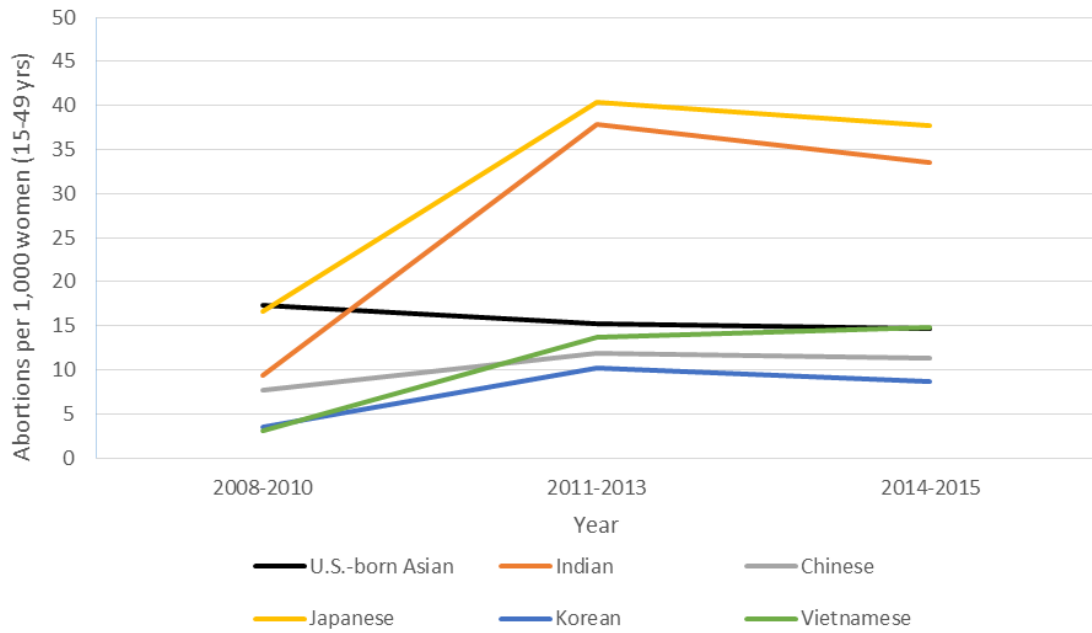
Figure 1c. Abortion rates by U.S.-born Asian groups, New York City: 2008-2015

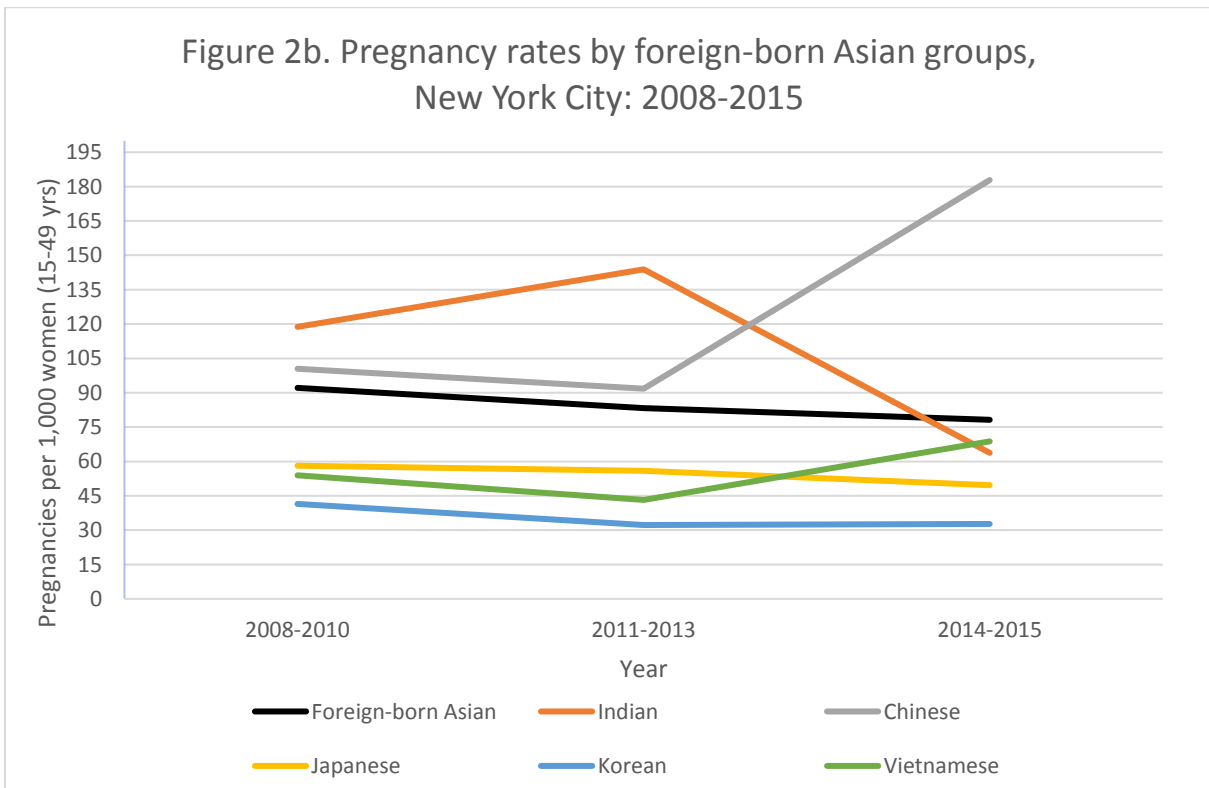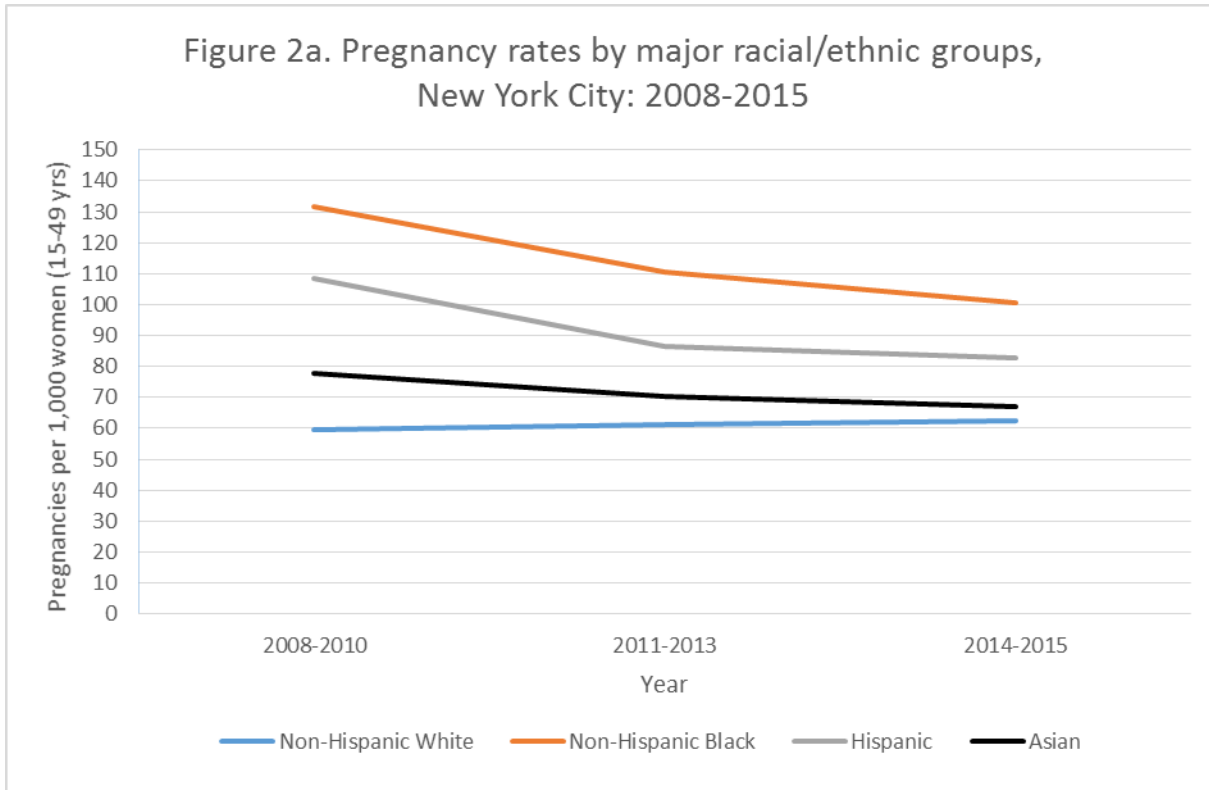**Figure 2a-2c. Trends in pregnancy rates by race/ethnicity and nativity**

Figure 2a. Pregnancy rates by major racial/ethnic groups, New York City: 2008-2015
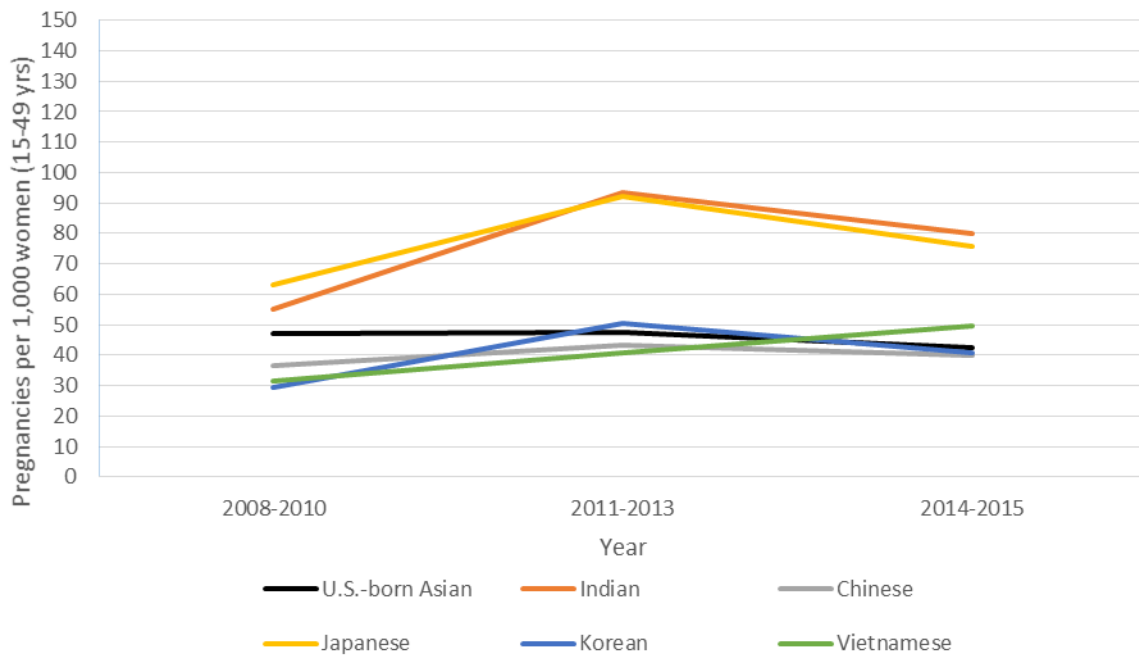

Figure 2b. Pregnancy rates by foreign-born Asian groups, New York City: 2008-2015

Figure 2c. Pregnancy rates by U.S.-born Asian groups, New York City: 2008-2015

Figure 3a-3c. Trends in abortion ratios by race/ethnicity and nativity

Figure 3a. Abortion ratios by major racial/ethnic groups, New York City: 2008-2015

Figure 3b. Abortion ratios by foreign-born Asian groups, New York City: 2008-2015
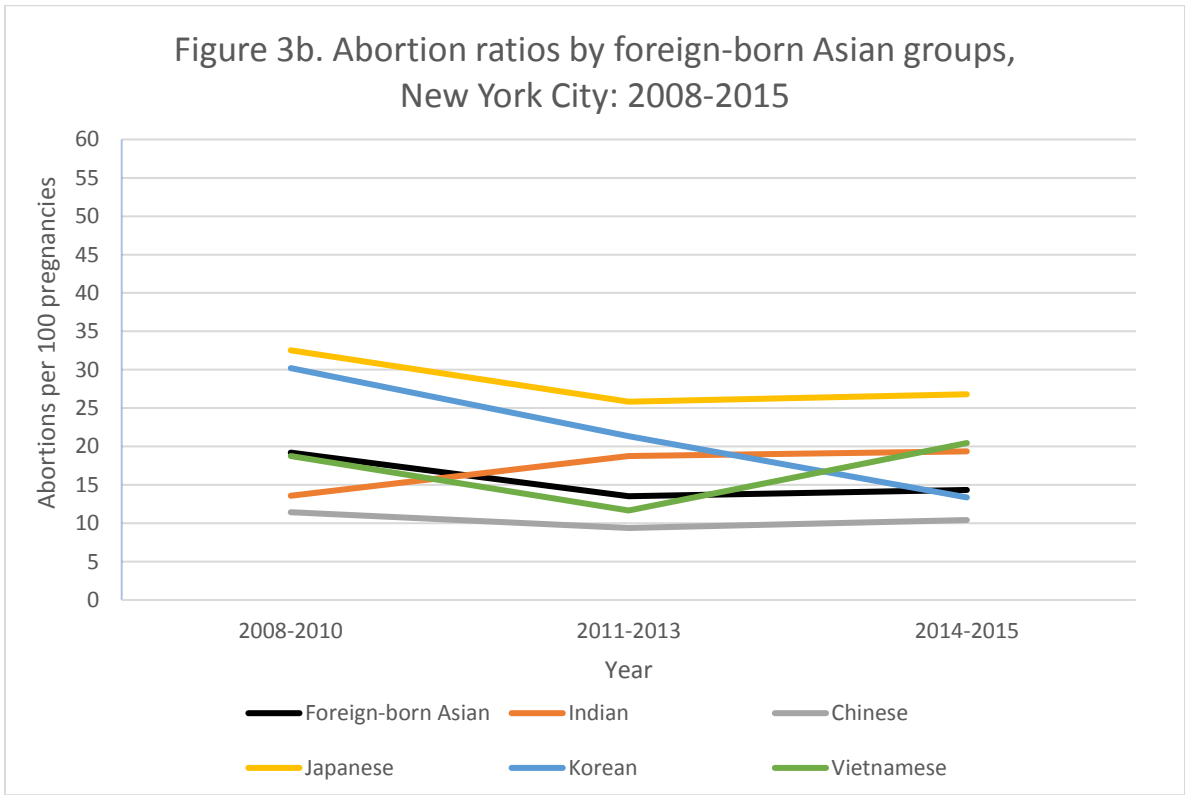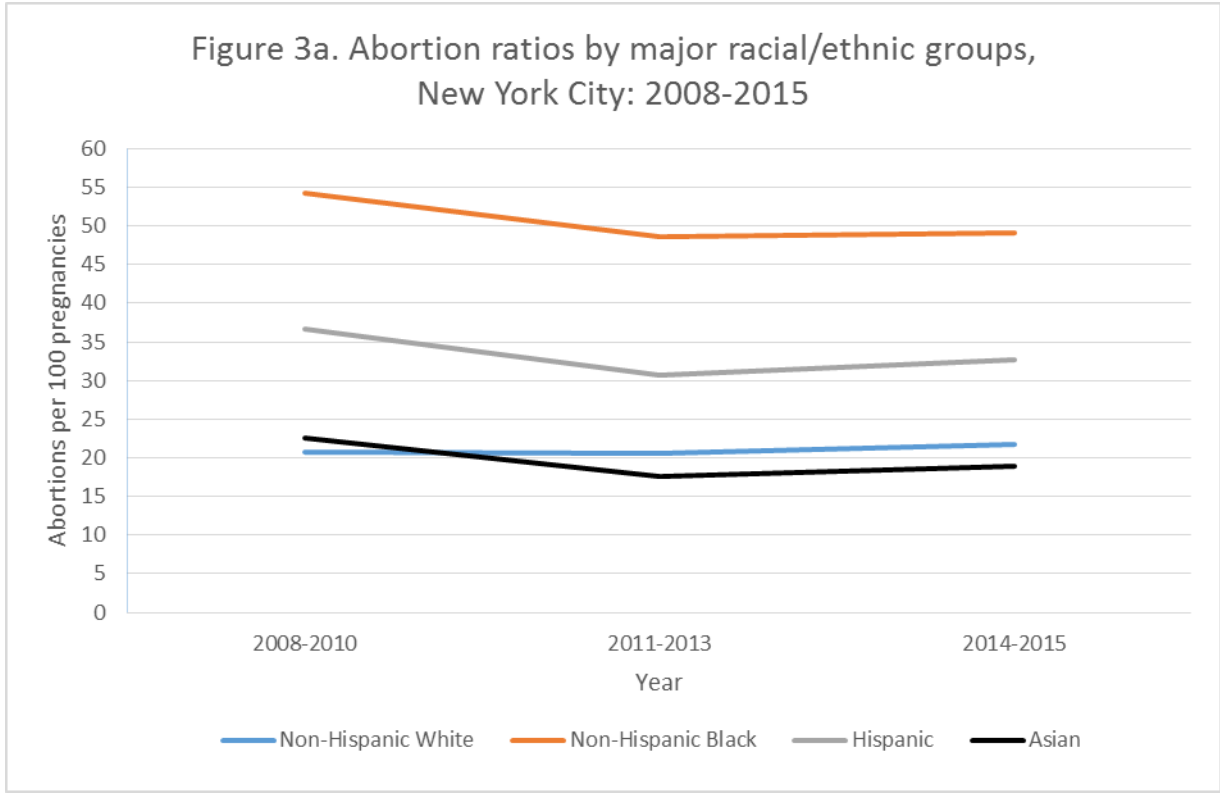
Figure 3c. Abortion ratios by U.S.-born Asian groups, New York City: 2008-2015