

Highly-Effective Contraception Use More Likely Among Native Hawaiian Women than Non-Native Hawaiian Women at Title X Clinics in Hawai'i

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Abstract

Differences in contraceptive method use have been noted among women of different races, but studies describing contraceptive method use among Native Hawaiian women have not been published. To examine method choice in this group, the authors conducted a database review of the Hawai'i State Department of Health Title X program. Reviewed were client visit records (CVRs) that health care providers completed for women who were ages 15-44 years, avoiding pregnancy, not currently pregnant, and using a contraceptive method (N=54513). Because a patient could have had several visits during the study period, the contraceptive method chosen at the last visit was selected for analysis. Statistical analyses included descriptive statistics, bivariate analyses, and logistic regression. The proportion of Native Hawaiian women who selected a highly-effective method of contraception (HEC), defined as an intrauterine device, implant, or permanent contraception, was higher than the proportion of non-Native Hawaiian women who selected an HEC. Overall, 15.4% of Native Hawaiian women during the study period chose HEC, compared to 8.8% of non-Native Hawaiian women. In a logistic regression analysis, Native Hawaiian women ages 15-29 were 1.46 times more likely to use HEC (95% CI: 1.35-1.58) than non-Native Hawaiian women ages 15-29, and Native Hawaiian women ages 30-44 were 1.69 times more likely to use HEC (95% CI: 1.53-1.87) than non-Native Hawaiian women in the same age group. Because Native Hawaiian women are reported to have higher rates of unintended pregnancy in the state compared to other racial groups, additional research exploring contraceptive non-use and pregnancy intention are needed.

Keywords

Native Hawaiian, contraception, Title X, unintended pregnancy, IUD, implant, permanent contraception

Abbreviations

CVR = Client visit record
FPL = federal poverty line
HEC = highly effective method of contraception
IUD = intrauterine device
PRAMS = Pregnancy Risk Assessment Monitoring System
RUCA = Rural-Urban Commuting Area

Introduction

A commonly used definition of an unintended pregnancy is a pregnancy that is either mistimed (ie, a woman did not want to become pregnant at the time the pregnancy occurred, but did want to become pregnant at some point in the future) or unwanted (ie, a woman did not want to become pregnant then or at any time in the future).¹ Compared to other developed

countries, the United States has a high rate of unintended pregnancy.² Unintended pregnancy is a significant health problem in Hawai'i, which ranked second in the nation for unintended pregnancy in 2010, with a rate of 61 unintended pregnancies per 1000 women.³ Public health endeavors have focused on addressing unintended pregnancies because of their association with adverse health outcomes for both mothers and children.¹ The data suggest Native Hawaiians are disproportionately affected by unintended pregnancy. According to data from the Hawai'i Pregnancy Risk Assessment Monitoring System (PRAMS), a survey obtained from postpartum women, among Native Hawaiian women who had a live birth between 2007-2011, 57% of pregnancies were unintended.⁴ This represents the highest proportion of unintended pregnancies among the major racial groups in Hawai'i.

Women experience unintended pregnancy because of a number of factors including contraceptive use and non-use and the inherent effectiveness of various methods. For this study, highly-effective contraception (HEC) was defined as any method with a failure rate of less than 1%.⁵ This group includes permanent sterilization, intrauterine devices (IUDs), and contraceptive implants. HEC has great potential to reduce unintended pregnancy rates in part because after the device is placed or the procedure is performed, HEC requires little effort on the part of the user and yet is highly effective.

This study sought to understand contraceptive use patterns among Native Hawaiian women and to determine whether Native Hawaiian women are more or less likely to choose an HEC than non-Native Hawaiian women in Title X clinics in Hawai'i.

Methods

A database review was conducted of the Hawai'i State Department of Health Title X program and records from 2006 to 2012 were gathered and examined. Enacted in 1970, Title X is a federal grant program dedicated to providing individuals with comprehensive contraceptive services.⁶ Title X family planning clinics provide reproductive health care, including contraceptives, at low or no cost to patients. The Title X program was selected because many barriers to contraception, such as financial and availability barriers, are removed or decreased at

these clinics. The contraceptive method a patient uses is more likely an accurate reflection of the method she preferred rather than a method she chose because of financial, insurance, or access limitations.

The database consisted of information extracted from the Family Planning Client Visit Record (CVR), which is completed by a clinic staff member at the end of every family planning patient visit. The CVR includes the primary contraceptive method selected at the end of the visit, types of services provided at that visit, as well as demographic and socioeconomic information. Data from all women seen during the study period who were between ages 15 and 44, avoiding pregnancy, not currently pregnant, and chose to use a contraceptive method at the end of the visit were included. Because patients could have several visits during the study period, the contraceptive method used at the most recent visit was used. Women who reported not using any method of contraception, including those who stated they were avoiding pregnancy were excluded because the study was done to examine the contraceptive choices made by women who desired a contraceptive method.

In the CVR, a patient can be identified with more than one race. All women who identified as full or part Native Hawaiian were included in the Native Hawaiian group. Women who did not identify as full or part Native Hawaiian were included in the non-Native Hawaiian group.

Statistical analyses included descriptive statistics and chi-square tests for categorical variables. Variables examined in bivariate analysis included: income, insurance, visit year, citizenship, English proficiency, provider type, and Rural-Urban Commuting Area Codes (RUCA) category. Multiple logistic regression assessing the impact of being Native Hawaiian on use of HEC and adjusting for confounders were performed. When age was added to the model, the association between the dependent and independent variables was strengthened. Stratified multivariate regression analyses based on 2 age categories, 15-29 years and 30-44 years, were performed. To broadly evaluate whether the relationship between being Native Hawaiian and use of HEC remained, only 2 age categories were used. Potential confounders were included in the model if they were significantly associated with both being Native Hawaiian and HEC use at $P < .1$ bivariately. SPSS version 24.0 (IBM Corp., Armonk, NY) was used for all analyses. This study was deemed exempt by the University of Hawai'i Committee on Human Studies.

Results

Of 205,036 CVRs, with data from 78,355 unique patients, in the Hawai'i State Department of Health Title X database between 2006 and 2012, 54,513 women/visits met the inclusion criteria. Of the women excluded, 5,444 were excluded because they did not choose a contraceptive method. Similar proportions of Native Hawaiian and non-Native Hawaiian women were excluded from the primary analysis because a contraceptive method was not chosen (10.1% of Native Hawaiian women versus 8.8% of non-Native Hawaiian women). Of the 54,513 women included, more than one-quarter (28.3%) were under 20 years old; more than three-quarters (77.6%) were under 30 years old. Most of the women (79.0%) reported incomes at or below 100% of the federal poverty level (FPL); 46.2% were uninsured. Of the eligible women, 23.4% identified as Native Hawaiian. Native Hawaiian and non-Native Hawaiian women in the sample differed significantly on all demographic characteristics except for provider type (Table 1). Of note, Native Hawaiian women tended to be younger than non-Native Hawaiian women. Users of HEC differed significantly from women who chose other types of contraception on all of the demographic characteristics examined (Table 2).

Between 2006 and 2012, there was an overall increase in the use of HEC among all clients, from 3.2% in 2006 to 14.3% in 2012 (Figure 1). In almost every year, the proportion of Native Hawaiian women using HEC was higher than the proportion of non-Native Hawaiian women using HEC. Overall, 15.4% of Native Hawaiian women during the study period chose HEC, compared to 8.8% of non-Native Hawaiian women. Use of each type of HEC was higher among Native Hawaiian women than non-Native Hawaiian women: IUDs (6.7% versus 4.6%), implants (4.7% versus 2.1%), and sterilization (4.0% versus 2.2%) (data not shown).

A logistic regression to compare HEC use in Native Hawaiian versus non-Native Hawaiian women was performed (Table 3). In the overall adjusted analysis, Native Hawaiian women were 1.37 (95% CI: 1.29-1.46) times more likely to use HEC than non-Native Hawaiian women. After stratifying by age, the association remained significant. Native Hawaiian women ages 15-29 were 1.46 times more likely to use HEC (95% CI: 1.35-1.58) than non-Native Hawaiian women ages 15-29, and Native Hawaiian women ages 30-44 were 1.69 times more likely to use HEC (95% CI: 1.53-1.87) than non-Native Hawaiian women of the same age range.

Table 1. Demographic Characteristics of Native Hawaiian and Non-Native Hawaiian Contraception-using Women Seen at Hawai'i Title X Clinics from 2006-2012

Variable	Native Hawaiian women n=12 763 (23.4%)	Non-Native Hawaiian women n=41 750 (76.6%)	Total N=54 513 (100%)	P-value
Age				
15-17 yo	2594 (20.3%)	5272 (12.6%)	7866 (14.4%)	<.001
18-19 yo	2248 (17.6%)	5292 (12.7%)	7540 (13.8%)	
20-24 yo	3385 (26.5%)	12 496 (29.9%)	15 881 (29.1%)	
25-29 yo	2097 (16.4%)	8929 (21.4%)	11 026 (20.2%)	
30-34 yo	1226 (9.6%)	4808 (11.5%)	6034 (11.1%)	
35-39 yo	660 (5.2%)	2948 (7.1%)	3608 (6.6%)	
40-44 yo	553 (4.3%)	2005 (4.8%)	2558 (4.7%)	
Income Category^{a,b}				
Less than 100% FPL	10 501 (84.2%)	31 654 (77.5%)	42 155 (79.0%)	<.001
101%-200% FPL	1306 (10.5%)	5964 (14.6%)	7270 (13.6%)	
201% FPL and above	663 (5.3%)	3248 (7.9%)	3911 (7.3%)	
Unknown/blank	293	884	1177	
Insurance Category^a				
Uninsured	4116 (32.7%)	20 807 (50.3%)	24 923 (46.2%)	<.001
Public insurance	5583 (43.4%)	10 174 (24.6%)	15 757 (29.2%)	
Private insurance	2839 (22.6%)	10 080 (24.4%)	12 919 (23.9%)	
Military insurance	41 (0.3%)	314 (0.8%)	355 (0.7%)	
Unknown	184	375	559	
Visit Year				
2006	570 (4.5%)	2528 (6.1%)	3098 (5.7%)	<.001
2007	1144 (9.0%)	4663 (11.2%)	5807 (10.7%)	
2008	1500 (11.8%)	5651 (13.5%)	7151 (13.1%)	
2009	1903 (14.9%)	6386 (15.3%)	8289 (15.2%)	
2010	2186 (17.1%)	7226 (17.3%)	9412 (17.3%)	
2011	3045 (23.9%)	8721 (20.9%)	11 766 (21.6%)	
2012	2415 (18.9%)	6575 (15.7%)	8990 (16.5%)	
US Citizen				
Yes	12 762 (100.0%)	39 184 (93.9%)	51 946 (95.3%)	<.001
No	1 (0.0%)	2566 (6.1%)	2567 (4.7%)	
Limited English Proficiency				
Yes	58 (0.5%)	1374 (3.3%)	1432 (2.6%)	<.001
No	12 704 (99.5%)	40 376 (96.7%)	53 080 (97.4%)	
Provider Type				
MD	2593 (20.3%)	8419 (20.2%)	11 012 (20.2%)	.681
NP, CNM, PA	9640 (75.5%)	31 659 (75.8%)	41 299 (75.8%)	
RN/LPN, other	529 (4.1%)	1668 (4.0%)	2197 (4.0%)	
RUCA Category^{a, c}				
Urban core	5476 (43.1%)	20 255 (49.6%)	25 731 (48.1%)	<.001
Suburban	1228 (9.7%)	2678 (6.6%)	3906 (7.3%)	
Large rural town	4252 (33.5%)	14 883 (36.5%)	19 135 (35.7%)	
Small rural town	1744 (13.7%)	3012 (7.4%)	4756 (8.9%)	
Missing	63	922	985	

^a Percentages represent valid percentages, excluding missing/unknown values; ^b Federal Poverty Level; ^c Rural-Urban Commuting Area Codes

Table 2. Demographic Characteristics of Contraception-using Women Seen at Hawai'i Title X Clinics from 2006-2012 by Method Effectiveness

Variable	Highly Effective Contraception Users n=5640 (10.3%)	Other Contraception Users n=48 873 (89.7%)	P-value
Race			
Native Hawaiian	1969 (34.9%)	10 794 (22.1%)	<.001
Non-Native Hawaiian	3671 (65.1%)	38 079 (77.9%)	
Age			
15-17 yo	264 (4.7%)	7602 (15.6%)	<.001
18-19 yo	347 (6.2%)	7193 (14.7%)	
20-24 yo	1107 (19.6%)	14 774 (30.2%)	
25-29 yo	1299 (23.0%)	9727 (19.9%)	
30-34 yo	1064 (18.9%)	4970 (10.2%)	
35-39 yo	847 (15.0%)	2761 (5.6%)	
40-44 yo	712 (12.6%)	1846 (3.8%)	
Income Category^{a,b}			
Less than 100% FPL	4456 (80.1%)	37 699 (78.9%)	<.001
101%-200% FPL	707 (12.7%)	6563 (13.7%)	
201% FPL and above	401 (7.2%)	3510 (7.3%)	
Unknown/blank	76	1101	
Insurance Category^a			
Uninsured	1090 (19.6%)	23 833 (49.3%)	<.001
Public insurance	3346 (60.0%)	12 411 (25.7%)	
Private insurance	1111 (19.9%)	11 808 (24.4%)	
Military insurance	27 (0.5%)	328 (0.7%)	
Unknown	66	493	
Visit Year			
2006	100 (1.8%)	2998 (6.1%)	<.001
2007	230 (4.1%)	5577 (11.4%)	
2008	444 (7.9%)	6707 (13.7%)	
2009	671 (11.9%)	7618 (15.6%)	
2010	1070 (19.0%)	8342 (17.1%)	
2011	1836 (32.6%)	9930 (20.3%)	
2012	1289 (22.9%)	7701 (15.8%)	
US Citizen			
Yes	5229 (92.7%)	46 717 (95.6%)	<.001
No	411 (7.3%)	2156 (4.4%)	
Limited English Proficiency			
Yes	321 (5.7%)	1111 (2.3%)	<.001
No	5318 (94.3%)	47 762 (97.7%)	
Provider Type			
MD	1461 (25.9%)	9551 (19.5%)	<.001
Advanced Practice Clinicians	4063 (72.0%)	37 236 (76.2%)	
Nurse, other	116 (2.3%)	2081 (4.3%)	
RUCA Category^{a,c}			
Urban core	3429 (61.1%)	22 302 (46.5%)	<.001
Suburban	254 (4.5%)	3652 (7.6%)	
Large rural town	1203 (21.4%)	17 932 (37.4%)	
Small rural town	726 (12.9%)	4030 (8.4%)	
Missing	28	957	

^a Percentages represent valid percentages, excluding missing/unknown values; ^b Federal Poverty Level; ^c Rural-Urban Commuting Area Codes

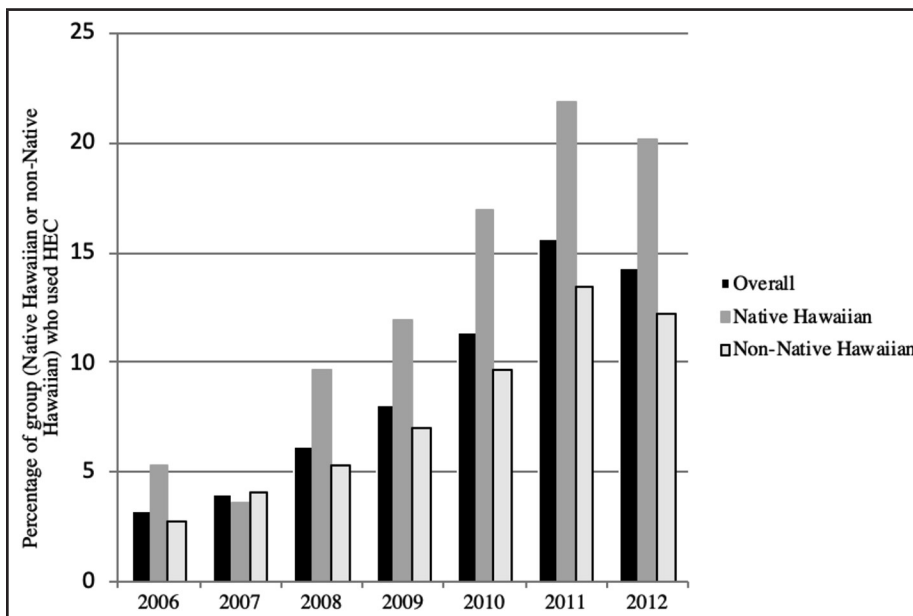


Figure 1. Use of Highly Effective Contraception Between 2006-2012 by Native Hawaiian and Non-Native Hawaiian Women Who Chose a Contraceptive Method at a Title X Clinic in Hawai'i

Table 3. Among Women at Title X Clinics in Hawai'i Who Chose a Contraceptive Method, the Likelihood of Native Hawaiian Women Using HEC Relative to Non-Native Hawaiian Women (Non-Native Hawaiian as Reference 1.0)

	Unadjusted Odds Ratio (95% CI)	Adjusted Odds Ratio (95% CI)
Overall (Ages 15-44)^a		
Native Hawaiian	1.89 (1.78-2.01)	1.37 (1.29-1.46)
Non-Native Hawaiian	ref	ref
Ages 15-29^b		
Native Hawaiian	2.06 (1.91-2.23)	1.46 (1.35-1.58)
Non-Native Hawaiian	ref	ref
Ages 30-44^b		
Native Hawaiian	2.16 (1.96-2.38)	1.69 (1.53-1.87)
Non-Native Hawaiian	ref	ref

^a Adjusted for visit year and insurance type

^b Adjusted for insurance type

Discussion

In this analysis of Title X data, Native Hawaiian women who visited Title X clinics in Hawai‘i were more likely to use highly-effective methods of contraception (HEC) than non-Native Hawaiian women. There was an increase in use of HEC from 2006-2012, which is consistent with national studies of contraceptive use.^{7,8} IUD and implant use nearly doubled from 3.8% (2006-2010) to 7.2% (2011-2013) among U.S. women ages 15-44.⁹ A recent study specifically explored IUD and implant use among adolescents at Title X sites nationally.¹⁰ Among teens ages 15-19 seeking contraceptive services at these sites, use of IUDs and implants increased from 0.4% in 2005 to 7.1% in 2013, a more than 15-fold increase.¹⁰ Hawai‘i ranked 5th highest in Title X teen client IUD and implant use, at 14.4%.⁹ While HEC use in this study increased among both Native Hawaiian and non-Native Hawaiian women between 2006-2012, the proportion of Native Hawaiian women using HEC was greater than that of non-Native Hawaiian women nearly every year.

This study is consistent with other findings demonstrating that differences in method choice exist by race. However, contrary to our results, several other studies have shown that racial minority women are less likely to use highly effective methods such as IUDs and implants.^{8,11,12} Various factors have been suggested as a cause for these differences, such as limitations to access, lack of education, mistrust based on historical reproductive injustice, and bias by medical professionals.^{8,11,12,13} As Native Hawaiians also experience numerous health and health-related disparities, the observed higher rate of HEC use among Native Hawaiian women was unexpected.

Although understanding the factors that influence contraceptive method use is integral to reducing unintended pregnancies, these factors are also part of a broader approach. It has been shown that higher HEC use is associated with lower unintended pregnancy rates and lower abortion rates.¹⁴ This study’s finding that among women choosing contraception, Native Hawaiian women were more likely to use highly effective methods compared to non-Native Hawaiian women. This implies that other factors—besides choice of contraceptive method—may influence the higher rates of unintended pregnancy among Native Hawaiians. In addition, individuals and communities think about pregnancy and pregnancy intention differently; although the medical literature measures unintended pregnancy as a binary outcome, it is more nuanced.^{8,11,12} Qualitative interviews with Native Hawaiians have captured varied understandings and experiences with “unintended pregnancies,” including pregnancy ambivalence and limited agency to plan pregnancies (ie, “pregnancy just happens”),¹⁵ indicating that current measurement of this concept is insufficient and perhaps less relevant as a health indicator in this community. Furthermore, Native Hawaiian women were more likely than non-Native

Hawaiian women to use no contraceptive method, and women who were not using any contraception were excluded from the current analysis. If Native Hawaiian women with ambivalent pregnancy intentions were more likely than ambivalent non-Native Hawaiian women to forego contraception altogether, this may have artificially inflated the proportion of Native Hawaiian women using HEC when looking only at women using contraception, as in this analysis. Further research is necessary to explore contraceptive method choice and pregnancy intentions among diverse populations.

Other limitations of this study include the reliance of the CVR forms on the self-identification of race and ethnicity, and the categorization of women into 2 racial categories (Native Hawaiian and non-Native Hawaiian) to specifically explore contraceptive use among Native Hawaiian women. Combining all other races could mask other differences in contraceptive use that may exist for other demographic groups. Pertinent variables, such as parity and clinic-specific information, were not available. Counseling and methods available may vary depending on the site visited and potentially influence the contraceptive method selected. The analysis was based at family planning clinics in Hawai‘i and may not be generalizable to other settings.

Strengths of this study include use of a large database compiled by clinics across the state. Although Native Hawaiian women are included in national studies, they are often grouped with Asian or Other Pacific Islander women. The Hawai‘i Title X database is one of the few sources of data where they can be examined as a separate group. This study is the only known published data on contraceptive method use among Native Hawaiians.

Unintended pregnancy is a public health problem that affects women and children. Native Hawaiians appear to have the highest rates of unintended pregnancy in Hawai‘i. It is integral to examine contraceptive use as a part of a broader approach in any effort to reduce unintended pregnancy. The fact that Native Hawaiian women are more likely to use the most effective methods of contraception than non-Native Hawaiian women indicates that other factors, such as health care delivery or our insufficient definitions around unintended pregnancy, should be examined to understand and better address unintended pregnancy among Native Hawaiian women.

Conflict of Interest

None of the authors identify a conflict of interest.

Disclosure Statement

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