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## Correlates of Self-reported Pelvic Inflammatory Disease Treatment in Sexually Experienced Reproductive Age Women in the United States, 1995 to 2006–10

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### Abstract

**Background**—Few studies have examined recent temporal trends in self-reported receipt of pelvic inflammatory disease (PID) treatment. We assessed trends in receipt of PID treatment and associated correlates using national survey data.

**Methods**—We used data from the National Survey of Family Growth, a multi-stage national probability survey of 15–44 year old women. We examined trends in self-reported receipt of PID treatment from 1995, 2002, to 2006–10. Additionally, we examined correlates of PID treatment in 1995 and 2006–10 in bivariate and adjusted analyses.

**Results**—From 1995 to 2002, receipt of PID treatment significantly declined from 8.6% to 5.7% ( $p < .0001$ ); however, there was no difference from 2002 to 2006–10 (5.0%,  $p = .16$ ). In bivariate analyses, racial differences in PID treatment declined across time; in 2006–10, there was no significant difference between racial/ethnic groups ( $p = .22$ ). Also in bivariate analyses, similar to 1995, in 2006–10, some of the highest reports of receipt of PID treatment were women who were 35–44 years old (5.6%), had an income less than 150% of poverty level (7.5%), had less than high school education (6.7%), douched (7.7%), had intercourse before age 15 (10.3%), and had 10 or more lifetime partners (8.0%). In adjusted analyses, differing from 1995, women at less than 150% of the poverty level were more likely (AOR=2.60, 95%CI 1.79–3.76) than women at 300% or more of the poverty level to have received PID treatment in 2006–10.

**Conclusions**—Receipt of PID treatment declined from 1995 to 2006–10 with the burden affecting women of lower socioeconomic status.

### SHORT SUMMARY

Data from a national probability sample of reproductive-aged women found a decrease in receipt of treatment for pelvic inflammatory disease from 1995 to 2006–10 but treatment was highest among women with a lower socioeconomic status.

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## Keywords

pelvic inflammatory disease; treatment; national data

Pelvic inflammatory disease (PID) has been associated with infertility and has been identified as a potential sequela of untreated sexually transmitted infections (STIs) such as chlamydia and gonorrhea [1–3]. A study reporting data from three national surveys found decreases in PID diagnosed in hospital and ambulatory visits from 1985 to 2001 [4]. Additionally, the study found that 91% of PID cases were diagnosed in ambulatory settings [4]. More recently, PID cases appeared to decline from 244,000 to 100,000 patient visits to physician offices for the condition from 2000 to 2009, respectively [5]. The cause of the apparent decline is unknown. Also, a substantial portion of PID cases may not be diagnosed as the symptoms may be mild or subclinical; therefore, established estimates for PID may be lower than true incidence. [6] In addition to infertility, the potential complications of PID include ectopic pregnancy, and chronic pelvic pain [5]. The medical cost per case of PID, including these complications, has been estimated to be about \$3200 (2010 dollars). [7]

Given the substantial burden related to PID in women, several studies have examined the correlates or risk factors for PID. Correlates that have been frequently associated with PID across multiple studies include age (mixed findings) [6,8–10], younger age at first sexual intercourse [8–13], number of sex partners (multiple partners in a specific timeframe or a higher number of partners) [6,8–10], and a history of STIs [6,8–9,12–13]. Other factors associated with PID that have been identified in some studies are non-use of contraceptives including barrier methods [6,8,11–12], lower education level or socio-economic status [10–12], and vaginal douching [8,12]. Finally, several studies have found disparities in PID incidence and prevalence by racial or ethnic groups. Specifically, these studies have found that black or non-white women are more likely to have PID than white women. [2,8–10,14–15]

However, few studies have examined recent trends and correlates of PID in the United States (U.S.) [5]. Given the recently observed decreases in PID, it is important to examine correlates of PID over time. Therefore, the objectives of this study were to 1) examine temporal trends in self-reported receipt of PID treatment and 2) examine correlates of receipt of PID treatment in 1995 and 2006–10.

## Methods

We used data from the National Survey of Family Growth (NSFG) a multi-stage national probability sample of men and women aged 15–44 years living in U.S. households. From 1973 to 2002, NSFG was conducted periodically (i.e., interviews conducted over a period of several months every 3–7 years). From June 2006 to June 2010, NSFG switched to continuous administration, with interviews conducted throughout this time period. For this study, we used female data from the 1995, 2002, and 2006–10 NSFG. The design of the NSFG has been described in detail elsewhere [17–18]; however, sample sizes and response rates for female respondents were as follows: 1995 (n=10,847, response rate = 79%) [19], 2002 (n=7,643, response rate = 80%) [20], and 2006–10 (n=12,279, response rate = 78%)

[21]. In all years, NSFG included over-samples of black and Hispanic women, and in 2002 and 2006–10 also included over-samples of adolescents. NSFG was approved by the ethics review board at the National Center for Health Statistics and respondents provided informed consent (adolescents provided assent after parental consent).

We used data from the computer assisted personal-interview (CAPI) where highly trained female interviewers administer survey questions. Our outcome of interest – ever received treatment for PID – was defined using the following survey question: “Have you ever been treated for an infection in your fallopian tubes, womb, or ovaries, also called a pelvic infection, pelvic inflammatory disease, or P.I.D.?” We examined several demographic characteristics and sexual behaviors previously identified as predictors or correlates of PID. Demographic factors included in this study were race/ethnicity (Hispanic, non-Hispanic white, and non-Hispanic black), age (15–19, 20–24, 25–34, 35–44), current marital status (married to a male, cohabiting with a male partner, formerly married, never married/not cohabiting), highest education level (less than high school/no general educational development or GED, high school/GED, some college, Bachelor’s degree or higher), family income as percentage of federal poverty level (FPL), referred to as income-poverty ratio level (less than 150%, 150–299%, and 300% or higher), and region of country where the respondent resides (northeast, midwest, south, west). Sexual and related behaviors included were: used a vaginal douche regularly [1995] or in the past 12 months [2002 and 2006–10] (douching was recoded as yes, no), age at first vaginal intercourse (less than 15 years, 15–17, 18–19, 20 years or older), and number of vaginal intercourse partners in lifetime (recoded [9] into the following categories: 1, 2–3, 4–9, 10 or more partners).

We used the SURVEY procedures in SAS (Release 9.2, SAS Institute, Cary, North Carolina) for all analyses to account for the multi-staged sampling procedures used by NSFG. Data were weighted to represent the U.S. female population aged 15–44 years in 1995, 2002, and 2006–10. All analyses were limited to sexually experienced women (i.e., reported at least one vaginal intercourse partner in lifetime) and the three racial/ethnic groups for which we had large sample sizes or were oversampled – Hispanic, non-Hispanic white, and non-Hispanic black. We conducted several analyses to examine trends in receipt of PID treatment and to examine correlates of PID treatment to determine if they changed over time. First, we used chi-square tests to compare differences in receipt of PID treatment overall and by race/ethnicity across time (1995, 2002, and 2006–10). Next, we examined the relationship between demographic characteristics and sexual and related behaviors and receipt of PID treatment in 1995 and 2006–10, separately. As douching was not consistently measured over time, we did not merge data from different survey years into one analysis that included survey year as a correlate. We used chi-square tests for bivariate analyses and conducted separate adjusted logistic regression models for the two survey periods (1995, 2006–10). Given that the variables included in our analyses were found to be significantly associated with PID in previous research, we used all variables in the adjusted analyses.

## Results

### Trends in PID Treatment: 1995, 2002, 2006–10

We examined differences in the receipt of PID treatment overall and by race/ethnicity (Hispanic, non-Hispanic white, non-Hispanic black) and during the three time periods included in this study. Overall, receipt of PID treatment among sexually experienced women significantly declined from 8.6% in 1995 to 5.7% in 2002 ( $p<.0001$ ) and then leveled off to 5.0% in 2006–10 ( $p=.16$ ). For 1995, we found significant differences in PID treatment among the three racial/ethnic groups with 11.6% of non-Hispanic black women, 8.7% of non-Hispanic white women, and 8.0% of Hispanic women reporting receipt of PID treatment in their lifetime ( $p<.001$ ) (Figure 1). The racial/ethnic differences appeared to decline in 2002; however, a significant difference remained with 7.4% of non-Hispanic black women, 6.4% of non-Hispanic white women, and 5.1% of Hispanic women reporting receipt of PID treatment in their lifetime ( $p<.05$ ). In 2006–10, there was no statistically significant differences in receipt of PID treatment by race/ethnicity ( $p=.22$ ).

### Correlates of PID Treatment: 1995 and 2006–10

In 1995, nearly all of the demographic characteristics and sexual behaviors that we examined had significant differences in receipt of PID treatment in bivariate analyses (Table 1). For race/ethnicity ( $p<.001$ ), age ( $p<.0001$ ), and current marital status ( $p<.0001$ ), women with the highest reports of receiving PID treatment were non-Hispanic black (11.6%), 35–44 years old (10.5%), or formerly married (12.8%). Both socioeconomic status variables that we examined, education level ( $p<.0001$ ) and poverty income level ( $p<.0001$ ) were significantly associated with receipt of PID treatment with highest reports among women with less than a high school education (10.1%) or an income less than 150% of FPL (10.7%). Additionally, there were significant differences by U.S. Census region of residence with highest reports of receipt of PID treatment in the south (10.0%). Finally, all three sexual and related behaviors were significantly associated with receipt of PID treatment with highest reports among women who douched (12.1%,  $p<.0001$ ), had first vaginal intercourse before age 15 years (12.5%,  $p<.0001$ ), or had 10 or more lifetime vaginal intercourse partners (15.1%,  $p<.0001$ ).

Similar patterns were found in bivariate analyses for the 2006–10 timeframe. Age ( $p=.04$ ), current marital status ( $p<.01$ ), education level ( $p<.0001$ ), and poverty income level ( $p<.0001$ ) remained significant correlates of receipt of PID treatment with the highest reports among women who were 35–45 years old (5.6%), formerly married (8.0%), had less than a high school education (6.7%), or an income less than 150% of the FPL (7.5%). Conversely, although significant in 1995, there were no significant differences in receipt of PID treatment by race/ethnicity ( $p=.22$ ) or region of the U.S. ( $p=.94$ ) in 2006–10. Similar to 1995, vaginal douching ( $p<.0001$ ), younger age at first vaginal intercourse ( $p<.0001$ ), and a higher number of lifetime vaginal intercourse partners ( $p<.0001$ ) were significantly related to receipt of PID treatment in 2006–10 with highest reports among women who douched (7.7%), had first vaginal intercourse before age 15 years (10.3%), or had 10 or more lifetime vaginal sex partners (8.0%).

### Adjusted analyses: 1995 and 2006–10

All variables were entered into separate logistic regression models by the two survey periods. In 1995, two demographic variables remained significantly associated with receipt of PID treatment in adjusted analyses - age and education level. As compared to women aged 35–44 years, women aged 15–19 years (AOR = 0.43, 95%CI 0.25–0.71), 20–24 years (AOR = 0.64, 95%CI 0.47–0.86), 25–29 years (AOR = 0.61, 95%CI 0.47–0.80) and 30–34 years (AOR = 0.76, 95%CI 0.61–0.96) were less likely to have received PID treatment. For education level, women having less than a high school diploma (AOR = 1.49, 95%CI 1.06–2.11) and those with a high school diploma or GED (AOR = 1.32, 95%CI 1.02–1.70) had higher reports of receipt of PID treatment than women with a Bachelor's degree or higher. All three sexual and related behaviors remained significant in adjusted analyses. Women who used a vaginal douche (AOR = 1.49, 95%CI 1.24–1.80), had first vaginal sex before age 15 years (AOR = 1.59, 95%CI 1.12–2.27), and who had 4–9 partners (AOR = 1.67, 95%CI 1.31–2.13) or 10 or more partners (AOR = 2.61, 95%CI 1.91–3.55) were more likely to report receipt of PID treatment than women who did not douche, had first vaginal sex at 20 years or older, or had one lifetime vaginal sex partner, respectively.

Findings from the 2006–10 logistic regression analysis had some similarities but also had some key differences to findings from the 1995 analysis. Similar to 1995, women with less education [having less than a high school diploma (AOR = 1.95, 95%CI 1.14–3.35), a high school diploma or GED (AOR = 1.89, 95%CI 1.23–2.90, or some college (AOR = 2.27, 95%CI 1.46–3.55)] were more likely to report receipt of PID treatment as compared to women with a Bachelor's degree or higher. Also similar to 1995, women who douched (AOR = 1.33, 95%CI 1.01–1.75) were more likely as those who did not douche to report receipt of PID treatment in 2006–10. Additionally, women who had first vaginal sex before age 15 years (AOR = 2.57, 95%CI 1.36–4.85) were more likely to report receipt of PID treatment than women who had first vaginal sex at 20 years or older. Those who had 4–9 partners (AOR = 1.76, 95%CI 1.03–3.00) or 10 or more partners (AOR = 2.09, 95%CI 1.20–3.66) were more likely to report receipt of PID treatment than women who had one lifetime vaginal sex partner. Conversely, findings for age and poverty level income differed from 1995 to 2006–10. In 2006–10, there was only one age-group (instead of four in 1995) affected by a significant difference for age – women who were 15–19 years old (AOR = 0.38, 95%CI 0.21–0.68) were less likely than women 35–44 years to report receipt of PID treatment. Additionally, women with an income less than 150% of the FPL (AOR = 2.60, 95%CI 1.79–3.76) and 150–299% of FPL (AOR = 1.84, 95%CI 1.20–2.82) were more likely than women with an income 300% of the FPL or higher to report receipt of PID treatment.

Given that many women aged less than 22 years are in the process of continuing their education, we conducted post-hoc adjusted analyses on 22–44 year old women to confirm that our results for education would be similar when limited to this somewhat older subpopulation. In both 1995 and 2006–10, our findings for education were similar when examining 15–44 year old and 22–44 year old women.

## Discussion

### Trends in PID Treatment

Findings from this study demonstrate a significant decline in self-reported receipt of PID treatment among reproductive-aged women in the U.S. Extending earlier research on decreases in PID across time [4], we found a continued decline in receipt of PID treatment between 1995 and 2002; however, we found no difference between 2002 and 2006–10. Additionally, racial differences in PID diagnosis or treatment were frequently found in earlier research [2,8–10,14–15]. However, although we found a difference by race/ethnicity using bivariate analyses in 1995 and 2002, race/ethnicity was not a significant correlate of receipt of PID treatment in our multivariable analysis of 1995 data.

It is possible that the continued decline in receipt of PID treatment may be related to changes in STI rates, screening for STIs such as gonorrhea and chlamydia (e.g., through identification of asymptomatic cases), or in issues related to healthcare access. However, the number of reported cases of gonorrhea varied little during our study timeframe [5]. Additionally, reported chlamydia cases appeared to increase during this time; but, research suggests that this increase may be related to increases in screening coverage or improvements in laboratory test technology [22]. A randomized controlled trial of chlamydia screening found fewer cases of PID in women in the screening arm [23], and a more recent analysis of monthly medical insurance claims data for women with private health insurance found that higher screening rates for chlamydia and gonorrhea were associated with a decreased rate of PID four months later [24]. Additionally, chlamydia screening of 16–24 year old women enrolled in commercial or Medicaid plans has consistently increased since 2001 [25]. An analysis of 15–25 year old women in 2006–08 NSFG found that non-Hispanic black women were more likely than non-Hispanic white women to report receiving a chlamydia test [26]. Thus, improvements in chlamydia screening, including treatment of the infection that is often asymptomatic, may be related to the observed declines in PID treatment over time. Although it is possible that changes in healthcare access played a role in the decline in PID, a previous analysis of NSFG data found no relationship between health insurance mandates and infertility service use [27]. The percentage of uninsured in the U.S. did not appear to change from 1995 to 2007; however, there were slight shifts from private to public insurance coverage during this time [28]. Therefore, additional research is needed to determine if healthcare access issues such as type of insurance were related to the observed decreases in PID treatment.

### Correlates of PID Treatment

In both timeframes, consistent with some previous research, receipt of PID treatment was related to douching [29] and sexual behaviors [8–9,12]; however, our analysis identified different patterns for age and poverty status across the two timeframes. In 2006–10, only adolescents were less likely than women 35–44 years old to have ever received treatment for PID whereas in 1995 all age groups were less likely to have received treatment for PID. It is possible that other factors such as a significant decrease in age disparities for reported cases of gonorrhea from 1981 to 2005 [30] and the increasing importance of socioeconomic status and PID treatment may have played a role in the changing age-related patterns over time. As

noted, socioeconomic status is an important predictor of PID treatment. In adjusted analyses, women whose education level was less than a Bachelor's degree were more likely to report receipt of PID treatment in both timeframes; however, poverty level was only significant in 2006–10, where women with lower household incomes were more likely to have received PID treatment.

There are some limitations to this study. First, our measure of receipt of PID treatment was subject to possible bias (e.g., recall and diagnosis biases). Diagnosis of PID can be difficult given that symptoms are similar to those of other reproductive health problems [6,31]. Also, one study found inconsistencies in PID diagnoses across healthcare providers in Australia, and authors speculated that it may be related to cases of PID missed by some doctors [32]. It is also possible that PID has become increasingly subclinical over time leading to a decrease in diagnoses. Another limitation is that we did not have a consistent measure of health insurance and healthcare access with appropriate timeframes across the datasets. There were limitations with our douching measure given different timeframe anchors and question wording used in 1995 and 2006–10. Additionally, there are limitations in adolescents' knowledge about household income; therefore, our measure of poverty income level may be less valid for this sub-population. Finally, we did not include a measure of STI history because questions about chlamydia and gonorrhea diagnoses used a shorter timeframe (past 12 months) that did not match well with our lifetime PID treatment variable. However, the strength of our study is that we used one of the few existing national data sources that include information on PID treatment for reproductive-aged women.

In summary, we found a decline in receipt of PID treatment and associated racial disparities from 1995 to 2006–10. However, in 2006–10, at least 2.5 million reproductive-aged women have received treatment for PID with the burden of disease falling on women of lower socioeconomic status. Therefore, public health and other medical efforts to reduce PID in these women are needed. Finally, additional research is needed to determine the cause of the apparent decline in PID.

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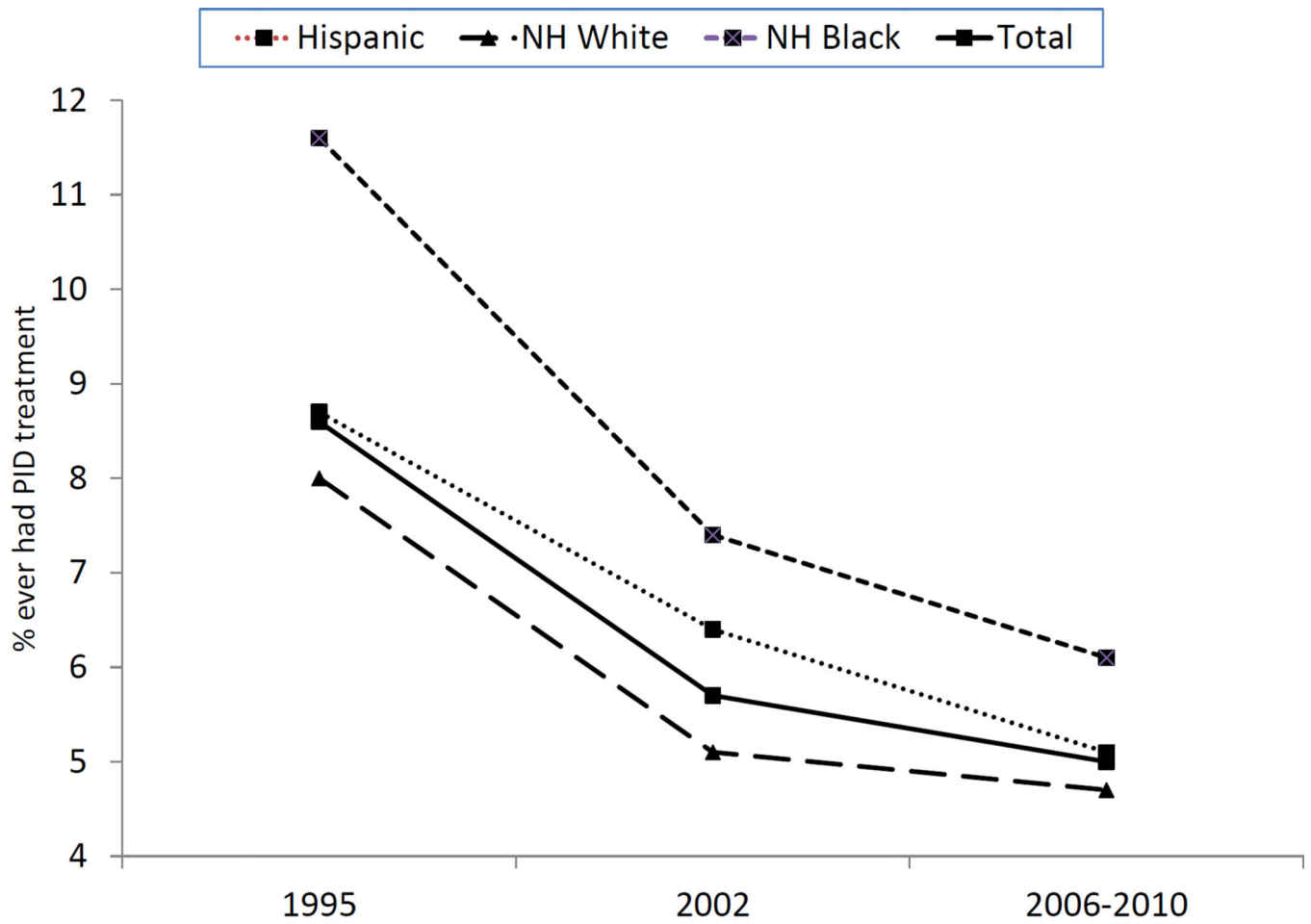
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1995:  $p=.0004$ ; 2002:  $p=.0317$ ; 2006-10:  $p=.2191$

**Figure 1.** Trends in lifetime prevalence of treatment for PID among sexually experienced women in the United States (15–44 yrs), overall and by race/ethnicity: 1995, 2002, 2006–10

**Table 1**

Correlates of PID treatment in lifetime among sexually experienced women 15–44 years: 1995 (n=9,602) and 2006–10 (n=10,031)

	1995 (unweighted n=9,602) (weighted n=51,609,000)		2006–10 (unweighted n=10,031) (weighted n=49,977,000)	
	% (95% CI)	P value	% (95% CI)	P value
<b>Overall % of women who received PID treatment</b>	8.6% (8.0–9.2)		5.0% (4.4–5.7)	
<b>Weighted population total of women who received PID treatment</b>	4,441,000		2,594,000	
<b>Demographics</b>				
Race/ethnicity		.0004		.2226
Hispanic	8.7 (6.8–10.7)		5.1 (3.7–6.4)	
White (non-Hispanic)	8.0 (7.2–8.8)		4.7 (3.8–5.6)	
Black (non-Hispanic)	11.6 (10.1–13.1)		6.1 (4.9–7.4)	
Age (years)		<.0001		.0354
15–19	4.8 (3.0–6.6)		2.6 (1.3–3.9)	
20–24	7.2 (5.8–8.6)		4.6 (3.1–6.1)	
25–29	6.9 (5.6–8.3)		5.2 (3.8–6.6)	
30–34	9.0 (7.6–10.3)		5.2 (3.8–6.6)	
35–44	10.5 (9.3–11.7)		5.6 (4.4–6.7)	
Current marital status		<.0001		.0046
Married	8.5 (7.6–9.4)		4.4 (3.5–5.3)	
Cohabiting	9.5 (7.3–11.8)		6.0 (4.3–7.7)	
Formerly married	12.8 (10.7–14.9)		8.0 (5.9–10.1)	
Never married	6.7 (5.6–7.8)		4.5 (3.3–5.6)	
Education level		<.0001		<.0001
< high school/no GED	10.0 (8.4–11.7)		6.7 (4.9–8.4)	
High school/GED	9.5 (8.5–10.5)		5.9 (4.7–7.1)	
Some college	8.5 (7.3–9.7)		5.9 (4.3–7.5)	
Bachelor's degree or higher	5.9 (4.8–7.0)		1.9 (1.3–2.5)	
Income-poverty ratio		<.0001		<.0001
< 150%	10.7 (9.4–12.0)		7.5 (6.3–8.8)	
150–299%	8.7 (7.6–9.7)		5.2 (3.8–6.6)	
300% or higher	7.5 (6.6–8.5)		2.5 (1.8–3.2)	
Region		<.0001		.9428
Northeast	6.0 (5.0–7.0)		5.3 (3.7–6.9)	
Midwest	7.9 (6.6–9.1)		4.9 (3.8–6.0)	
South	10.0 (8.8–11.2)		5.1 (3.8–6.4)	
West	9.6 (8.2–11.0)		4.8 (3.9–5.7)	
<b>Sexual and related behaviors</b>				
Used vaginal douche *		<.0001		<.0001

	1995 (unweighted n=9,602) (weighted n=51,609,000)		2006–10 (unweighted n=10,031) (weighted n=49,977,000)	
	% (95% CI)	P value	% (95% CI)	P value
Yes	12.1 (10.9–13.4)		7.7 (6.2–9.3)	
No	7.1 (6.4–7.8)		4.1 (3.4–4.7)	
Age at first vaginal sex		<.0001		<.0001
< 15 years	12.5 (10.4–14.6)		10.3 (8.0–12.6)	
15–17 years	9.6 (8.7–10.4)		5.1 (4.2–6.1)	
18–19 years	6.7 (5.7–7.8)		3.0 (2.0–3.9)	
20 years or older	5.6 (4.3–7.0)		2.4 (1.4–3.5)	
Number of lifetime vaginal sex partners		<.0001		<.0001
1 partner	5.4 (4.3–6.4)		2.4 (1.5–3.3)	
2–3 partners	6.9 (5.8–8.1)		3.9 (2.8–5.0)	
4–9 partners	9.7 (8.6–10.7)		5.8 (4.6–7.0)	
10 or more partners	15.1 (13.0–17.2)		8.0 (6.0–9.9)	

Note. GED = general educational development.

\* In 1995, women were asked a yes/no question whether they regularly “douche”; in 2006–2010, women were asked how often they douched over the last 12 months, and were offered several response categories, including “did not douche at all.” Given the variation in question wording, a yes/no variable was defined for this analysis.

**Table 2**

Adjusted logistic regression models: PID treatment in lifetime among sexually experienced women by race/ethnicity, 1995 (n=9,395) and 2006–10 (n=10,005)

	1995 AOR (95% CI)	2006–10 AOR (95% CI)
<b>Demographics</b>		
Race/ethnicity		
Hispanic	1.15 (0.86 – 1.55)	0.96 (0.63 – 1.43)
White (non-Hispanic)	referent	Referent
Black (non-Hispanic)	1.19 (0.96 – 1.48)	0.86 (0.61 – 1.23)
Age (years)		
15–19	0.43 (0.25 – 0.71)	0.38 (0.21 – 0.68)
20–24	0.64 (0.47 – 0.86)	0.73 (0.46 – 1.15)
25–29	0.61 (0.47 – 0.80)	0.84 (0.60 – 1.19)
30–34	0.76 (0.61 – 0.96)	0.89 (0.65 – 1.24)
35–44	referent	referent
Current marital status		
Married	referent	referent
Cohabiting	0.89 (0.65 – 1.21)	0.90 (0.61 – 1.33)
Formerly married	1.05 (0.82 – 1.35)	1.07 (0.77 – 1.48)
Never married	0.83 (0.62 – 1.04)	0.88 (0.59 – 1.32)
Education level		
< high school/no GED	1.49 (1.06 – 2.11)	1.95 (1.14 – 3.35)
High school/GED	1.32 (1.02 – 1.70)	1.89 (1.23 – 2.90)
Some college	1.29 (1.00 – 1.67)	2.27 (1.46 – 3.55)
Bachelor's degree or higher	referent	referent
Income-poverty ratio		
< 150%	1.17 (0.92 – 1.48)	2.60 (1.79 – 3.76)
150–299%	1.04 (0.85 – 1.27)	1.84 (1.20 – 2.82)
300% or higher	referent	referent
Region		
Northeast	0.65 (0.51 – 0.84)	1.15 (0.77 – 1.72)
Midwest	0.90 (0.70 – 1.16)	0.91 (0.66 – 1.25)
South	1.00 (0.79 – 1.26)	0.90 (0.63 – 1.28)
West	referent	referent
<b>Sexual and related behaviors</b>		
Used vaginal douche *		
Yes	1.49 (1.24 – 1.80)	1.33 (1.01 – 1.75)
No	referent	referent
Age at first vaginal sex		
< 15 years	1.59 (1.12 – 2.27)	2.57 (1.36 – 4.85)
15–17 years	1.31 (0.98 – 1.74)	1.41 (0.80 – 2.46)

	<b>1995 AOR (95% CI)</b>	<b>2006–10 AOR (95% CI)</b>
18–19 years	1.01 (0.74 – 1.38)	0.96 (0.55 – 1.68)
20 years or older	referent	referent
Number of lifetime vaginal sex partners		
1 partner	referent	referent
2–3 partners	1.23 (0.93 – 1.64)	1.35 (0.79 – 2.30)
4–9 partners	1.67 (1.31 – 2.13)	1.76 (1.03 – 3.00)
10 or more partners	2.61 (1.91 – 3.55)	2.10 (1.20 – 3.66)

Note. Adjustment was for variables listed in this table only. GED = general educational development.

\* In 1995, women were asked a yes/no question whether they regularly “douche”; in 2006–2010, women were asked how often they douched over the last 12 months, and were offered several response categories, including “did not douche at all.” Given the variation in question wording, a yes/no variable was defined for this analysis.

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