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Socioeconomic Status as a Risk Factor for Unintended Pregnancy in the Contraceptive CHOICE Project

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Abstract

Objective—To evaluate the association of low socioeconomic status as an independent risk factor for unintended pregnancy.

Methods—We performed a secondary analysis of data from the Contraceptive CHOICE project. Between 2007 and 2011, 9,256 participants were recruited and followed for up to 3 years. The primary outcome of interest was unintended pregnancy; the primary exposure variable was low socioeconomic status, defined as self-report of either receiving public assistance or having difficulty paying for basic necessities. Four contraceptive groups were evaluated: 1) long-acting reversible contraceptive method (hormonal or copper intrauterine device (IUD) or subdermal implant) users; 2) depot medroxyprogesterone acetate injection; 3) oral contraceptive pills, a transdermal patch, a vaginal ring; or 4) other or no method. Confounders were adjusted for in the multivariable Cox proportional-hazard model to estimate the effect of socioeconomic status on risk of unintended pregnancy.

Results—Participants with low socioeconomic status experienced 515 unintended pregnancies during 14,001 women-years of follow-up (3.68 per 100 women-years; 95% CI: 3.37–4.01]), compared to 200 unintended pregnancies during 10,296 women-years (1.94 per 100 women-years; 95% CI: 1.68–2.23]) among participants without low socioeconomic status. Women with low socioeconomic status were more likely to have an unintended pregnancy (unadjusted hazard ratio (HR) = 1.8 [95% CI: 1.5–2.2]. After adjusting for age, education level and insurance status, low socioeconomic status was associated with an increased risk of unintended pregnancy (adjusted hazard rate ratio = 1.4 [95% CI: 1.1–1.7])

CONCLUSION—Despite the removal of cost barriers, low socioeconomic status is associated with a higher incidence of unintended pregnancy.

INTRODUCTION

Unintended and unplanned pregnancies are perplexing public health problems that are associated with higher rates of poor maternal and child health outcomes as well as an annual public cost of over $21 billion in the United States.(1,2) Despite decades of study and proposed interventions, the percentage of pregnancies that are mistimed or unwanted remains between 45 and 50%.(1,3,4) Increased use of long-acting reversible contraception (LARC), intrauterine devices (IUDs) and the contraceptive implant, can have a profound impact on the rates of unintended pregnancies and abortions and may help reduce health disparities. (5,6,7,8)

Unfortunately, some women and couples at greatest risk of unintended pregnancy are least likely to have access or means to afford the most effective contraceptive methods. Even with the provision of no-cost contraception through the Affordable Care Act (ACA), the rates of unintended pregnancy remain high.(4,9) Differential implementation of the ACA and expansion of Medicaid has resulted in many remaining uninsured and lacking contraceptive access. Socioeconomic status may be an essential characteristic to consider as a risk factor for unintended pregnancy. In addition, other demographic characteristics such as young age, black race, and lower educational level may also be associated with higher rates of unintended pregnancy. These factors are associated with informational barriers and a culture of social norms and attitudes regarding childbearing, pregnancy and contraceptive use that contribute to contraceptive behaviors.(10,11)

Data from the Contraceptive CHOICE Project (CHOICE) were used to assess and quantify risk factors associated with unintended pregnancy in a diverse cohort of women with access to no-cost contraception. We hypothesized that low socioeconomic status is an independent risk factor for unintended pregnancy, even after controlling for other potential confounders including demographic and reproductive characteristics, and contraceptive method use.

MATERIALS AND METHODS

The Contraceptive CHOICE Project is a prospective cohort study of 9,256 participants in the St. Louis region; this is a secondary analysis of the CHOICE database. The methods of the Contraceptive CHOICE Project have been described in numerous publications.(5,6) Between 2007 and 2011, we recruited 9,256 participants into an observational study to assess contraceptive choice, continuation, and satisfaction with contemporary methods of contraception. To enroll in the study, women had to: 1) live in the St. Louis region; 2) be sexually active with a male partner (or intend to be); 3) speak English or Spanish; 4) desire to avoid conception for at least 12 months; and 5) be willing to start a new contraceptive method. Women were excluded if they: 1) refused telephone follow-up; 2) were unwilling to consent; or 3) were sterile or desired sterilization. Prior to initiating the study, the project was approved by the Washington University in St. Louis Institutional Review Board.

At baseline, we collected demographic information including age, race, ethnicity, educational level, income, need for public assistance, and other markers of socioeconomic status (defined as self-report of either receiving public assistance or having difficulty paying for basic necessities such as food and housing). Reproductive information included gravidity, parity, history of sexually transmitted infections (i.e. bacterial or viral), and history of unintended pregnancy. We also collected information regarding tobacco and drug abuse, sexual history, and baseline choice of contraceptive method in the Contraceptive CHOICE Project.

All participants were followed longitudinally with telephone surveys at 3, 6, 12 months, and every 6 months for the duration of participation. Our first group of approximately 5,000 participants were followed for 3 years, while the remainder of the cohort was followed for 2 years. All contraceptive methods were provided at no cost to participants for the duration of their participation. In addition, women could change their contraceptive method at any time during their participation.

This analysis included all 9,256 participants. We measured segments of contraceptive method use by each woman throughout study participation. Information about method start and stop dates was collected from three sources: scheduled telephone interviews; pharmacy data obtained from the partner pharmacy where participants obtained pills, patch, or ring; and the participant contraceptive-method log that documented when the participant initiated or discontinued use of a method or switched to another method (i.e., insertion or removal of an IUD or implant; receipt of an initial pill supply, patch, or ring; and depot medroxyprogesterone acetate (DMPA) injection). A participant was considered to have used DMPA for the 16-week interval after a record of an injection, based on the World Health Organization recommendation. If participants switched methods during the study, they contributed distinct segments to multiple methods. Contraceptive methods were grouped as follows: 1) long-acting reversible contraception (LARC) included the hormonal or copper IUD and the subdermal implant; 2) depot medroxyprogesterone acetate (DMPA) injection; 3) oral contraceptive pills, a transdermal patch or a vaginal ring; and 4) other. An "other" category was created for participants that were using any contraceptive methods other than the seven methods mentioned above. For example, if participants used condoms or another barrier method (e.g. diaphragm), coitus interruptus, natural family planning, or reported no method, they were grouped into the "other" contraceptive category.

Our primary outcome for this analysis was unintended pregnancy, which was assessed at each follow-up phone surveys. Participants were asked about the possibility of pregnancy and missed menstruation at each follow up. If there was a chance that a participant was pregnant, she was asked to return to the clinic for a urine pregnancy test. If the pregnancy test was positive, the date of the last menstrual period was used to calculate the conception date. A pregnancy log sheet was used to collect data on all the pregnancies reported during the study and an unintended pregnancy was defined as a conception that participant reported as "not intended." If a participant had multiple unintended pregnancies during her time in the study, we only account for the segments of method use prior to the first unintended pregnancy. If a participant reported an intended pregnancy or reported having stopped contraceptive method trying to conceive, then her segment of method use was censored at

the time of intended pregnancy or when she stopped contraceptive method for desire of a pregnancy.

To describe the demographic characteristics of the study participants, means, standard deviations, frequencies, and percentages were used depending on the data type. Participants were grouped by their chosen method at enrollment into one of the following method groups: LARC (IUDor implant), DMPA and contraceptive pills, patch, or ring. For the comparison among participants with different baseline chosen method, ANOVA was used for normally distributed continuous variables, and chi-square test was performed for categorical variables.

Our primary exposure variable was low socioeconomic status, defined as self-report of either receiving public assistance or having difficulty paying for basic necessities. Cox proportional-hazard models were used to estimate the hazard ratios for unintended pregnancy. Clustering of variance–covariance estimation methods were used to account for the effect of correlation among different segments of contraceptive use from the same participant. Demographic (i.e., age, race, educational level, income and insurance), and reproductive characteristics (history of unintended pregnancy, history of abortion, history of sexually transmitted infections (STI) and current STI at enrollment(*Neisseria gonorrhoeae, Chlamydia trachomatis, Trichomonas vaginalis*), and contraceptive methods were evaluated for potential confounding effect in the association between socioeconomic status and unintended pregnancy. Confounding was defined as a greater than 10% relative change in the association between socioeconomic status and risk of unintended pregnancy with or without the potential confounding covariate in the model. Confounders were included in the final multivariable model. All the statistical analyses were performed using Stata software, version 11 (StataCorp). The significance level (alpha) was set at 0.05.

The sample size for the Contraceptive CHOICE Project was adequate to address the specific research question in this analysis. The sample provides > 90% power to detect a 40% increase in unintended pregnancy in women of low socioeconomic status compared to participants not meeting our low socioeconomic status definition (with an alpha (significance) level of 0.05).

RESULTS

The baseline characteristics of the study population are shown in Table 1. The mean age of the participants was 25 years; 50% were black, 35% have less than high school education, 58% were considered low socioeconomic status. Over 40% of participants were uninsured, 63% experienced at least one unintended pregnancy, 35% had an abortion, and 40% have a history of a STI. Eight percent of participants were found to have an STI at baseline.

Table 1 also compares demographic and reproductive characteristics by choice of contraceptive method at enrollment: LARC, DMPA, or pills, patch, and vaginal ring (PPR). LARC users were slightly older, more likely to be overweight or obese, have higher gravidity/parity, and more likely to have a previous unintended pregnancy. DMPA users were more likely to be black, have a previous or current STI, and to have history of abortion.

Pills, patch, and ring users were younger, have a higher level of education and socioeconomic status, more likely to be privately insured, low parity, less likely to have a history of unintended pregnancy, abortion, or STI, and less likely to have a current STI.

In our analysis, there were total of 1000 pregnancies reported, among which 716 (71.6%) were unintended pregnancies over the 2–3 years of follow-up. Participants with low socioeconomic status experienced 515 unintended pregnancies during 14,001 women years (3.68 per 100 women-years; 95% confidence interval (CI): 3.37–4.01]), compared to 200 unintended pregnancies during 10,296 women years (1.94 per 100 women-years; 95% CI: 1.68–2.23]) among participants without low socioeconomic status. Women with low socioeconomic status were more likely to have an unintended pregnancy (unadjusted hazard ratio = 1.8 [95% CI: 1.5–2.2]. Demographic and reproductive factors associated with unintended pregnancy in the univariable analysis included age, race, educational level, insurance, gravidity, parity, history of unintended pregnancy and abortion, history of STI, and positive STI at enrollment. Contraceptive method was also a significant risk factor in our univariable analysis. These factors were further evaluated for confounding effect in the association between socioeconomic status and unintended pregnancy, and Table 2 contains the final multivariable model after adjusting for confounders. After adjusting for age, education level and insurance status, low socioeconomic status was associated with an increased risk of unintended pregnancy (adjusted hazard rate ratio = 1.4 [95% CI: 1.1–1.7]).

DISCUSSION

In our analysis of over 700 unintended pregnancies in the Contraceptive CHOICE Project, low socioeconomic status was associated with an increased incidence of unplanned pregnancy, even when no-cost contraception has been provided. Our results also indicate that demographic factors such as young age (under 20 years), low educational level, and a history of unintended pregnancy were associated with unplanned pregnancy in our sample. Furthermore, as shown in previous studies, use of a LARC method (IUD or implant) was highly protective. These results highlight socioeconomic status as an important independent risk factor for unintended pregnancy. It is interesting that socioeconomic status was still associated with a higher rate of unintended pregnancy, even after financial barriers to contraceptive provision were removed. This finding may be attributed to user error, issues with method adherence, misunderstanding due to lower educational level, or gaps in contraceptive method use.

The medical literature supports our findings of the association of low socioeconomic status and unintended pregnancy. Despite an overall decrease in the rates of unintended pregnancy in the U.S. from 1994 to 2001 and from 2008 to 2011, there was a consistent rise in the rates among the poorest women (below 100% of the poverty level) and a significantly increased rate compared to women of higher socioeconomic status. (4,12) The poorest women are four to five times more likely than women living at 200% of the poverty line or higher to have an unintended pregnancy. (3,12) Reasons for this disparity may be attributed in part to the link between low socioeconomic status and low educational level. However, we found socioeconomic status to be a risk factor even after controlling for education. Other studies have shown that women with the fewest years of education (less than college), had the

highest incidence of unintended pregnancy.(3,4,11) Rates of unintended pregnancy tends to decrease as years of education attained increases.(3,4,11)

Young age is another important risk factor for unintended pregnancy that is supported by the medical literature. Studies indicate that even with an overall decrease in unintended pregnancy between 2008 and 2011, young women 18 to 29 years of age have the highest rate of unintended pregnancy. While teenagers age 15–18 have seen a decrease in unintended pregnancy rates over the past 20 years, the rate in this age group is still double that of adult females.(1,4,10,11,13) Many young adults and adolescents have limited contraceptive knowledge, restricted access to contraceptives and exhibit conflicting and ambivalent attitudes about pregnancy and contraceptive use. This creates a situation where most young adults are not trying to get pregnant, but are not taking the necessary precautions to avoid unintended pregnancy.(10,14,15) As Isabel Sawhill writes in her book, *Generation Unbound,* more and more young people are "drifting" into parenthood, rather than planning pregnancies. The result of which may lead to increased poverty, inequality, and health disparities.(16)

The use of a LARC has been shown in several studies to reduce rates of unintended pregnancy more effectively than other contraceptive methods. (5,7) The American College of Obstetrics and Gynecologists, the American Academy of Pediatrics and the Centers for Disease Control and Prevention (CDC) have all recommended that LARC methods should be offered as first line methods of contraception for women of various age groups, parity, age and physical characteristics. (17,18,19,20) Several studies have illustrated that when barriers to cost, access and knowledge are removed, black-white disparities in unintended pregnancy among sexually active teens and women were reduced.(5,15,21) By adapting a client-centered approach for counseling teens and women, ensuring the most effective contraceptive methods are discussed with each patient, and adapting programs to help subsidize the provision of these methods, it is possible that unintended pregnancy rates across all ages, ethnic and socioeconomic statuses will continue to decline.(7,8,15)

Previous unintended pregnancy belongs to a collection of high risk behaviors that may be contributing factors to the high rate of unintended pregnancy.(22) Data suggest that women who partake in high risk behaviors such as early onset coitus, coitus with multiple sexual partners, and failure to use barrier contraception may have a higher risk of unintended pregnancy and acquiring an STI.(17,23)

The strengths of our study include the prospective design of the Contraceptive CHOICE Project, the large, economically and ethnically diverse cohort, and a population of women who were at high risk for unintended pregnancy. In addition, this report contains a large number of unintended pregnancies (over 700) in a dataset with individual-level demographic and reproductive data. There are few prospective studies in the medical literature that simultaneously examine socioeconomic status, other demographic and reproductive characteristics, contraceptive method use and the risk of unintended pregnancy. One limitation of this project is generalizability. The CHOICE population contained a disproportionately high representation of black (51%) and low socioeconomic status (58%) participants than the U.S. population (12.3% black), and was limited geographically to the

St. Louis region. Our inclusion criteria that required participants to try a new contraceptive method also may limit generalizability.

Acknowledgments

References

1. Finer LB, Zolna MR. Shifts in intended and unintended pregnancies in the united states, 2001–2008. Am J Public Health. 2014; 104(Suppl 1):S43–8. [PubMed: 24354819]

2. Sonfield, A., Kost, K. Public costs from unintended pregnancies and the role of public insurance programs in paying for pregnancy-related care: National and state estimates for 2010. Guttmacher Institute; 2015.

3. Finer LB, Zolna MR. Unintended pregnancy in the united states: Incidence and disparities, 2006. Contraception. 2011; 84:478–85. [PubMed: 22018121]

4. Finer LB, Zolna MR. Declines in unintended pregnancy in the united states, 2008–2011. N Engl J Med. 2016; 374:843–52. [PubMed: 26962904]

5. Peipert JF, Madden T, Allsworth JE, Secura GM. Preventing unintended pregnancies by providing no-cost contraception. Obstet Gynecol. 2012; 120:1291–7. [PubMed: 23168752]

6. Winner B, Peipert JF, Zhao Q, Buckel C, Madden T, Allsworth JE, et al. Effectiveness of long-acting reversible contraception. N Engl J Med. 2012; 366:1998–2007. [PubMed: 22621627]

7. Curtis KM, Peipert JF. Long-acting reversible contraception. N Engl J Med. 2017; 376:461–8. [PubMed: 28146650]

8. Parks C, Peipert JF. Eliminating health disparities in unintended pregnancy with long-acting reversible contraception (LARC). Am J Obstet Gynecol. 2016; 214:681–8. [PubMed: 26875950]

9. Weisman CS, Chuang CH. Making the most of the affordable care act's contraceptive coverage mandate for privately-insured women. Womens Health Issues. 2014; 24:465–8. [PubMed: 25128037]

10. Frost JJ, Lindberg LD, Finer LB. Young adults' contraceptive knowledge, norms and attitudes: Associations with risk of unintended pregnancy. Perspect Sex Reprod Health. 2012; 44:107–16. [PubMed: 22681426]

11. Kim TY, Dagher RK, Chen J. Racial/ethnic differences in unintended pregnancy: Evidence from a national sample of U.S. women. Am J Prev Med. 2016; 50:427–35. [PubMed: 26616306]

12. Finer LB, Kost K. Unintended pregnancy rates at the state level. Perspect Sex Reprod Health. 2011; 43:78–87. [PubMed: 21651706]

13. Pazol K, Whiteman MK, Folger SG, Kourtis AP, Marchbanks PA, Jamieson DJ. Sporadic contraceptive use and nonuse: Age-specific prevalence and associated factors. Am J Obstet Gynecol. 2015; 212:324, e1, 324.e8. [PubMed: 25305406]

14. Murray CC, Hatfield-Timajchy K, Kraft JM, Bergdall AR, Habel MA, Kottke M, et al. In their own words: Romantic relationships and the sexual health of young african american women. Public Health Rep. 2013; 128(Suppl 1):33–42.

15. Romero L, Pazol K, Warner L, Gavin L, Moskosky S, Besera G, et al. Vital signs: Trends in use of long-acting reversible contraception among teens aged 15–19 years seeking contraceptive services. 2015; 64:363–9.

16. Sawhill, IV. Generation Unbound; Drifting into Sex and Parenthood without Marriage. Brookings Institution Press; 2014.

17. Workowski KA, Bolan GA. Centers for Disease Control and Prevention. Sexually transmitted diseases treatment guidelines, 2015. MMWR Recomm Rep. 2015; 64:1–137.

18. Committee on Adolescence. Contraception for adolescents. Pediatrics. 2014; 134:e1244–56. [PubMed: 25266430]

19. Committee on Adolescent Health Care Long-Acting Reversible Contraception Working Group, The American College of Obstetricians and Gynecologists. Committee opinion no 539: Adolescents and long-acting reversible contraception: Implants and intrauterine devices. Obstet Gynecol. 2012; 120:983–8. [PubMed: 22996129]

20. Committee on Gynecologic Practice Long-Acting Reversible Contraception Working Group. Committee opinion no 642: Increasing access to contraceptive implants and intrauterine devices to reduce unintended pregnancy. Obstet Gynecol. 2015; 126:e44–8. [PubMed: 26393458]

21. Goodman M, Onwumere O, Milam L, Peipert JF. Reducing health disparities by removing cost, access, and knowledge barriers. Am J Obstet Gynecol. 2016

22. Matteson KA, Peipert JF, Allsworth J, Phipps MG, Redding CA. Unplanned pregnancy: Does past experience influence the use of a contraceptive method? Obstet Gynecol. 2006; 107:121–7. [PubMed: 16394049]

23. Herrick A, Kuhns L, Kinsky S, Johnson A, Garofalo R. Demographic, psychosocial, and contextual factors associated with sexual risk behaviors among young sexual minority women. J Am Psychiatr Nurses Assoc. 2013; 19:345–55. [PubMed: 24217447]

Table 1

Baseline characteristics of participants of CHOICE (N=9256)

Characteristics*	All (n=9256)†		LARC‡ (n=6928)		DMPA§ (n=638)		PPR‖ (n=1686)		p-value
Age, years	Mean 25.1	SD‖ 5.9	Mean 25.5	SD 6.04	Mean 24.5	SD 6.0	Mean 24.1	SD 4.89	<0.001
	N	%	N	%	N	%	N	%	%
Race									<0.001
Black	4670	50.5	3475	50.2	476	74.6	718	42.6	
White	3870	41.8	2912	42.0	130	20.4	825	49.0	
Others	715	7.7	541	7.8	32	5.0	142	8.4	
Education									<0.001
<= High School	3205	34.6	2497	36.1	303	47.6	405	24.0	
Some College	3902	42.2	2884	41.6	268	42.1	749	44.4	
College/Graduate	2146	23.2	1545	22.3	66	10.4	532	31.6	
BMI# (kg/m²)									<0.001
Underweight	264	2.9	153	2.2	50	8.0	60	3.6	
Normal	3636	39.8	2551	37.3	307	49.0	776	47.1	
Overweight	2363	25.9	1830	26.7	125	20.0	407	24.7	
Obese	2863	31.4	2313	33.8	144	23.0	406	24.6	
Low SES**									<0.001
No	3885	42.0	2764	39.9	211	33.1	908	53.9	
Yes	5369	58.0	4163	60.1	426	66.9	778	46.1	
Insurance									<0.001
None	3782	41.1	2716	39.4	369	58.6	697	41.8	
Private	3957	43.0	2898	42.0	183	29.1	873	52.4	
Public	1455	15.8	1280	18.6	78	12.4	96	5.8	
Gravidity									<0.001
0	2817	30.4	1788	25.8	170	26.7	856	50.8	

Characteristics*	All (n=9256)[†]		LARC‡ (n=6928)		DMPA§ (n=638)		PPR‖ (n=1686)		p-value
Age, years	Mean 25.1	SD¶ 5.9	Mean 25.5	SD 6.04	Mean 24.5	SD 6.0	Mean 24.1	SD 4.89	<0.001
	N	%	N	%	N	%	N	%	
1	2011	21.7	1481	21.4	150	23.5	380	22.5	
2	1643	17.8	1318	19.0	112	17.6	213	12.6	
3+	2785	30.1	2341	33.8	206	32.3	237	14.1	
Parity									<0.001
0	4353	47.0	2850	41.1	305	47.8	1195	70.9	
1	2261	24.4	1811	26.1	145	22.7	304	18.0	
2	1611	17.4	1377	19.9	108	16.9	126	7.5	
3+	1031	11.1	890	12.9	80	12.5	61	3.6	
Unintended Pregnancies									<0.001
0	3401	36.8	2262	32.7	216	34.0	920	54.7	
1	2492	27.0	1884	27.2	184	28.9	424	25.2	
2	1551	16.8	1261	18.2	111	17.5	179	10.6	
3+	1796	19.4	1510	21.8	125	19.7	160	9.5	
EVER ABORTION AT BASELINE									<0.001
No	6050	65.4	4484	64.7	372	58.3	1191	70.6	
Yes	3206	34.6	2444	35.3	266	41.7	495	29.4	
HISTORY OF STI[**]									<0.001
No	5506	59.5	4053	58.5	338	53.0	1112	66.0	
Yes	3746	40.5	2872	41.5	300	47.0	573	34.0	
ANY STI AT BASELINE									<0.001
No	8090	92.2	6070	92.2	519	87.5	1497	94.0	
Yes	682	7.8	513	7.8	74	12.5	95	6.0	

*
ANOVA for continuous variables, and Chi-square test for categorical variables

[†]
Columns do not add up to 9256 because four participants did not choose any of the seven methods

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[‡]LARC = Long-acting reversible contraception

[§]DMPA = Depot medroxyprogesterone acetate

[||]PPR= Pills, Patch or Ring

[¶]Standard Deviation

[#]Body Mass Index

[**]Socioeconomic Status: defined as self-report of either receiving public assistance or having difficulty paying for basic necessities such as food and housing

[**]Sexually Transmitted Infection

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Table 2

Hazard Ratios for factors associated with unintended pregnancy in crude and adjusted Cox proportional hazard regression models

	# UP*	Total women years	rate per 100 women-years	Hazard ratios (Crude)			Hazard ratios (Adjusted)†		
Low SES‡									
No	200	10296	1.94	1.00			1.00		
Yes	515	14001	3.68	1.83	1.54	2.17	1.40	1.14	1.71
Contraceptive method									
LARC§	40	13877	0.29	1.00			-		
DMPA‖	27	1709	1.58	4.19	2.55	6.89	-		
PPR	313	4732	6.61	18.76	13.48	26.11	-		
Others	336	3986	8.43	22.57	16.19	31.46	-		
Age									
20+ years	558	20688	2.70	1.00			1.00		
<20 years	158	3616	4.37	1.46	1.22	1.76	1.43	1.14	1.79
Race									
Black	459	12165	3.77	1.77	1.49	2.11	-		
White	203	10280	1.97	1.00			-		
Others	54	1856	2.91	1.40	1.01	1.94	-		
Education level									
High school or less	365	8447	4.32	1.00			1.00		
Some college	286	10258	2.79	0.68	0.58	0.80	0.77	0.65	0.91
College/Graduate	65	5589	1.16	0.30	0.23	0.39	0.44	0.32	0.60
Insurance									
None	348	10036	3.47	1.66	1.40	1.98	1.19	0.98	1.45
Private	211	10466	2.02	1.00			1.00		
Public	154	3634	4.24	1.89	1.52	2.36	1.11	0.86	1.42
History of Unintended pregnancies									
0	176	8777	2.01	1.00			1.00		
1	225	6577	3.42	1.63	1.32	2.00	1.32	1.07	1.64

	# UP*	Total women years	rate per 100 women-years	Hazard ratios (Crude)			Hazard ratios (Adjusted)†		
2	130	4074	3.19	1.60	1.27	2.00	1.31	1.02	1.69
3+	184	4831	3.81	1.86	1.51	2.30	1.50	1.18	1.91
History of STI#									
No	341	14510	2.35		1.00			-	
Yes	374	9781	3.82	1.59	1.37	1.85		-	

†SES, age, education, insurance and history of unintended pregnancy were included in the multivariable model

*SES = Socioeconomic status: two participants did not respond to this item in the questionnaire and one had an unintended pregnancy. Total UP=716

§LARC = Long-acting reversible contraception

||DMPA = Depot medroxyprogesterone acetate

¶PPR = Contraceptive pills, patch, and ring

#STI = Sexually transmitted infection