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Short-acting hormonal contraceptive continuation among low-income postpartum women in Texas☆,☆☆

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ABSTRACT

Objective: The objective was to assess continuation of the pill, patch, ring or injectable (i.e., short-acting hormonal contraception); characteristics associated with discontinuation; and subsequent method use among low-income postpartum women in Texas.

Study design: Using a 24-month cohort study of 1700 women who delivered in eight Texas hospitals and were uninsured or publicly insured at the time of delivery, we focused on 456 women who used short-acting hormonal contraception within 6 months after delivery. We classified this sample according to characteristics and method preference, and estimated rates of discontinuation and associated predictors using life tables and Cox models. We assessed reasons for discontinuation and subsequent contraceptive use among those who discontinued.

Results: Roughly half used the pill and half used the injectable. One hundred seventy-eight (39%) expressed a baseline preference for the method they used, 162 (36%) preferred a long-acting reversible contraception method, and 41 (9%) preferred sterilization. After 1 year, 72% had discontinued [95% confidence interval (CI) 67.1–75.7]. Foreign-born Hispanic women were less likely to discontinue than U.S.-born Hispanics [adjusted hazard ratio (aHR), 0.65; 95% CI 0.50–0.84]. Those who wanted a more effective method (aHR, 1.44; 95% CI 1.12–1.85) and those who lost insurance coverage (aHR, 1.47; 95% CI 1.12–1.92) were more likely to discontinue. The most common reasons for discontinuation were side effects and access/cost. Of those who discontinued, 243 (68%) switched to a less effective or no method. Only 47 (13%) switched to their preferred method.

Conclusions: Short-acting hormonal contraceptive discontinuation is high in this population. Many switch to less effective methods after discontinuation despite preferring methods at least as effective as the pill, patch, ring or injectable.

Implications: Expanding contraceptive coverage in the 2 years after delivery should be a state and federal policy priority. In clinics, providers should discuss contraceptive preferences throughout pregnancy and the interpregnancy interval.

1. Introduction

The postpartum period presents an important window for contraceptive initiation, as women who have recently given birth often have access to health care services and insurance coverage for contraception and rarely wish to conceive soon after delivery. The first method of contraception many women use after delivery is a short-acting hormonal method, including the pill, patch, ring or injectable [1,2].

Among the general population of reproductive-aged women in the United States, continuation rates of short-acting hormonal contraception are low, ranging from 43% to 69% six months after initiation [3–6]. Even in settings arranged to reduce barriers, such as studies in publicly funded clinics or offering no-cost method switching, continuation remains low [3–5]. Studies focused on postpartum adolescents have found similar rates [7–10].

Among the reasons for these low continuation rates are that short-acting hormonal methods require regular refills, which may impede continuous use [3]. Postpartum women may face additional logistical challenges accessing refills while caring for an infant, and some may use hormonal contraception due to barriers or delays accessing other methods they would prefer, particularly IUDs, implants and sterilization [11,12]. Reasons for discontinuation not

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specific to the postpartum period include side effects and method failure, among others [3–5,13].

Contraceptive coverage may lapse after delivery for low-income women in Texas, a state which has not adopted Medicaid expansion and is home to a large foreign-born Hispanic population. Coverage options include Medicaid for Pregnant Women, which offers 60 days of coverage after delivery for those who earn up to 198% of the Federal Poverty Level (FPL) and have resided in the United States for at least 5 years, and Medicaid for Parents and Caretakers, which has similar residency requirements and an income threshold of less than 20% FPL for a family of three [14]. Recent and undocumented immigrants may be eligible for CHIP Perinatal, but contraception is not covered by this program.

This study's objective was to prospectively assess continuation of short-acting hormonal contraception after delivery, characteristics associated with discontinuation, and subsequent method use among a cohort of low-income women who delivered in Texas.

2. Materials and methods

2.1. Sample characteristics and data

We used data from a prospective cohort study of 1700 women who gave birth in one of eight hospitals located in six cities in Texas. Eligible participants were covered by Medicaid for Pregnant Women or CHIP Perinatal or were uninsured at delivery; were of ages 18–44 years; were English or Spanish speakers; had delivered a healthy, singleton baby; were expected to live in the hospital's catchment area for at least another year; and wanted to delay subsequent childbearing for 2 or more years.

Recruitment took place between October 2014 and April 2016. Interviewers recruited participants in the hospital prior to discharge and, after obtaining informed consent, conducted baseline interviews in person. Follow-up interviews took place via telephone at 3, 6, 12, 18 and 24 months after delivery. Additional details regarding recruitment and retention have been reported previously [12]. The University of Texas at Austin's institutional review board and the boards at participating hospitals approved data collection.

We focused this study on women who began using the pill, patch, ring or injectable (i.e., short-acting hormonal contraception) within 6 months after delivery. We included women who used condoms, withdrawal and other less effective methods prior to using a short-acting method but excluded those who used long-acting reversible contraception (LARC) first. Given our focus on use shortly after delivery, we excluded women who did not complete the 3-month interview.

Interviewers collected information on age, parity, education, race/ethnicity and nativity during the baseline interview, and respondents self-reported insurance coverage at each interview. Interviewers assessed method preference at baseline and 3 months by asking what method of contraception women would like to be using 6 months after delivery if the method were available for free. At subsequent interviews, method preference was assessed by asking, "if you could get any birth control method you wanted for free, what method would you use?"

Our primary outcome was short-acting hormonal method discontinuation. Starting at the 3-month interview, women reported which method they were currently using and the date they began using it. From the 6-month interview forward, if a woman's method changed between interviews, she reported stop and start dates associated with method use. Using these dates, we identified short-acting hormonal users, calculated duration of use and determined the method used after short-acting hormonal discontinuation. Switching method types or ceasing to use contraception was considered a discontinuation, while switching pill types was not.

During the 3-month interview, women reported whether they had received a method or prescription at the hospital or at a postpartum visit, but they were not asked explicitly whether they had started *and* stopped using a method between baseline and the 3-month interview; dates were only collected for methods currently in use at the 3-month interview. For those who had received a short-acting method from the hospital or at the postpartum visit but were not still using it at 3 months ($n = 212$), we considered method type and whether they *received* or were *prescribed* this method at the hospital or postpartum visit. For those who received an injection but were no longer using it, we recorded a 90-day duration of use ($n = 47$). For the remaining women, we reviewed interviewer notes from the 3-month interview, concluding that someone had initiated a short-acting method if there was evidence of use (e.g., reported side effects, reported cost barriers to continuing use; $n = 76$). We considered method use to start the day she received the method or prescription and stop the day before she began using the method she was currently using at the 3-month interview. Among those who did not appear to use the method they received or were prescribed at the hospital or postpartum visit, 52 were excluded from analysis. The remaining 37 were included in the sample, as they began using a short-acting method at another point in time prior to the 6-month interview outside of the method they received from the hospital or postpartum visit.

By only considering method use identified through interviewer notes, our results likely yield an underestimate of short-acting hormonal use that began and ended within the 3 months after delivery. We conducted sensitivity analyses excluding all method use that began and ended in that period. Results were substantively similar; we therefore report findings that incorporated method use from baseline in analyses.

Starting at the 6-month interview, respondents could report reasons for discontinuation through an open-ended question. We categorized responses into broad themes, recording multiple reasons for discontinuation.

2.2. Analytic strategy

We examined the characteristics of women who used short-acting hormonal contraception as their first method within 6 months after delivery, overall and by their baseline method preference. We conducted χ^2 tests to assess differences in preferred method use at baseline.

Using life table estimation techniques, we calculated the cumulative proportion of method users who discontinued within 3, 6, 12 and 18 months of initiating use of a short-acting hormonal method. We fit Cox proportional hazard models to assess predictors of discontinuation. We tested goodness-of-fit using likelihood ratio tests and present models including the following: method type, race/ethnicity and nativity, relative efficacy of preferred method at baseline compared to method used, a time-varying measure of insurance loss between interviews, timing of method initiation and parity.

We present reasons for discontinuation by method type. We also compared the first method women began using within 4 weeks of discontinuation to their method preference in the interview prior to discontinuation. Analyses were conducted using Stata 16 [15].

3. Results

Of the 1700 women enrolled in the study, 1469 completed the 3-month interview. Among them, we identified 456 (31%) who began using a short-acting hormonal method within 6 months after delivery, excluding those who used a LARC method prior to a short-acting hormonal method ($n = 2$) and those who likely never initiated use of a method received from the hospital or postpartum visit ($n = 52$). Retention among these 456 short-acting hormonal users was 86% at 24 months.

Women were mostly young, had at least a high school education, had a child prior to the index birth and were of Hispanic origin (Table 1). Method use was roughly split between the injectable and

Table 1
Characteristics of low-income women in Texas who used a short-acting hormonal method within 6 months after delivery, overall and by method use compared to method preference expressed at baseline, 2014–2018

Characteristic	Total		Method preference at baseline				p value
			Preferred short-acting method used after delivery		Preferred a different method than short-acting hormonal used		
		(%)[a]		(%)[b]		(%)[b]	
Age (years)							
18–24	230	(50.4)	95	(41.3)	135	(58.7)	
25–29	128	(28.1)	43	(33.6)	85	(66.4)	
30+	98	(21.5)	40	(40.8)	58	(59.2)	.33
Education							
<High school	154	(33.8)	63	(40.9)	91	(59.1)	
High school graduate	182	(39.9)	73	(40.1)	109	(59.9)	
Some college/college degree	120	(26.3)	42	(35.0)	78	(65.0)	.57
Parity							
1	132	(28.9)	61	(46.2)	71	(53.8)	
2	154	(33.8)	62	(40.3)	92	(59.7)	
3+	170	(37.3)	55	(32.4)	115	(67.6)	.046
Race or ethnicity and nativity							
Hispanic, foreign-born	187	(41.0)	64	(34.2)	123	(65.8)	
Hispanic, U.S.-born	171	(37.5)	77	(45.0)	94	(55.0)	
Black	75	(16.4)	22	(29.3)	53	(70.7)	
White/other	23	(5.0)	15	(65.2)	8	(34.8)	.003
Hormonal method used postpartum							
Injectable	220	(48.2)	78	(35.5)	142	(64.5)	
Pill	217	(47.6)	96	(44.2)	121	(55.8)	
Ring	9	(2.0)	1	(11.1)	8	(88.9)	
Patch	10	(2.2)	3	(30.0)	7	(70.0)	.074
Preferred method of contraception at baseline[c]							
Sterilization or vasectomy	41	(9.0)	0	(0.0)	41	(100.0)	
Long-acting reversible	162	(35.5)	0	(0.0)	162	(100.0)	
Short-acting hormonal	227	(49.8)	178	(78.4)	49	(21.6)	
Less effective, none or don't know[d]	26	(5.7)	0	(0.0)	26	(100.0)	<.001
First reported use of short-acting hormonal method							
Hospital	97	(21.3)	49	(50.5)	48	(49.5)	
Postpartum visit	214	(46.9)	85	(39.7)	129	(60.3)	
3-month interview	100	(21.9)	33	(33.0)	67	(67.0)	
6-month interview	45	(9.9)	11	(24.4)	34	(75.6)	.012
Insurance status at delivery							
Insured	438	(96.1)	172	(39.3)	266	(60.7)	
Uninsured	18	(3.9)	6	(33.3)	12	(66.7)	.61
Insurance status at 6 months[e]							
Insured	115	(27.3)	49	(42.6)	66	(57.4)	
Uninsured	307	(72.7)	113	(36.8)	194	(63.2)	.28
Total	456	(100.0)	178	(39.0)	278	(61.0)	

[a] Column percentages.
[b] Row percentages.
[c] Baseline interviews were conducted in the hospital after delivery and prior to discharge.
[d] Less effective methods include condoms, withdrawal, spermicide, emergency contraception and diaphragms.
[e] Excludes 34 women who did not complete the 6-month interview.

the pill. Few women were uninsured at the time of delivery, though nearly three quarters had lost insurance by the 6-month interview.

Overall, 178 (39%) expressed a baseline preference for the method they began using within 6 months. Women with fewer children were more likely to be using their preferred method, as were white and U.S.-born Hispanic women and those who initiated use of a short-acting hormonal method sooner after delivery.

Within 3 months of method initiation, 30% discontinued (Table 2). This figure rose to 58% by 6 months and 72% by 12 months. We found no difference in discontinuation by method type.

Adjusting for covariates, risk of discontinuation within 2 years after delivery for foreign-born Hispanic women was less than that of U.S.-born Hispanics (Table 3). Compared to those who were using their preferred method, women who wanted to use a more effective method than the pill, patch, ring or injectable had a higher risk of discontinuation. Those who lost insurance coverage had a higher risk of discontinuation. Women who first reported using a short-acting hormonal method at the 6-month interview had a lower risk of discontinuation than those who began using their method after discharge from the hospital.

Among those who discontinued for a reason other than pregnancy, the two most commonly reported reasons were side effects (e.g., headaches, weight gain) and accessibility or cost (e.g., loss of insurance coverage, difficulty scheduling or accessing transportation to appointments) (Table 4).

Just over two thirds began using condoms, withdrawal, abstinence or no method within 4 weeks of discontinuation, while roughly one quarter switched to a method that was at least as effective as the

Table 2
Cumulative probability of discontinuing short-acting hormonal method by 3, 6, 12 and 18 months after method initiation among low-income women in Texas who used a short-acting method within 6 months after delivery, 2014–2018

	Injectable	95% CI	Pill, patch, ring	95% CI	Total	95% CI
3 months	29.6	(24.0–36.3)	30.1	(24.6–36.5)	29.9	(25.9–34.5)
6 months	63.3	(56.7–69.8)	51.9	(45.5–58.7)	57.5	(52.9–62.2)
12 months	74.8	(68.7–80.5)	68.2	(61.9–74.4)	71.5	(67.1–75.7)
18 months	83.0	(77.4–87.9)	77.7	(71.9–83.2)	80.3	(76.3–84.1)

Probabilities calculated from life tables. CI, confidence interval.

Table 3
Hazard ratios of short-acting hormonal discontinuation within 2 years after delivery among low-income women in Texas who used a short-acting method within 6 months after delivery, 2014–2018

	Unadjusted hazard ratio	95% CI	Adjusted hazard ratio	95% CI
Method				
Injectable	1 (ref)	–	1 (ref)	–
Pill, patch or ring	0.86	0.70–1.07	0.88	0.71–1.10
Race or ethnicity and nativity				
Hispanic, U.S.-born	1 (ref)	–	1 (ref)	–
Hispanic, foreign-born	0.65	0.51–0.83	0.65	0.50–0.84
Black	1.07	0.80–1.44	0.89	0.64–1.22
White/other	1.12	0.71–1.77	1.12	0.70–1.80
Relative efficacy of preferred method at baseline				
Using preferred method	1 (ref)	–	1 (ref)	–
Prefer a different short-acting hormonal	1.08	0.76–1.54	1.20	0.83–1.73
Prefer more effective method	1.23	0.98–1.54	1.44	1.12–1.85
Prefer less effective method	1.06	0.66–1.72	1.28	0.78–2.10
Loss of insurance coverage				
No loss of coverage	1 (ref)	–	1 (ref)	–
Loss of coverage	1.58	1.21–2.05	1.47	1.12–1.92
First reported use of method				
Hospital	1 (ref)	–	1 (ref)	–
Postpartum visit	0.90	0.69–1.17	0.91	0.68–1.22
3-month interview	0.75	0.55–1.03	0.75	0.53–1.06
6-month interview	0.50	0.32–0.79	0.58	0.36–0.93
Parity				
1	1 (ref)	–	1 (ref)	–
2	0.76	0.59–0.99	0.78	0.59–1.02
3+	0.81	0.62–1.04	0.84	0.63–1.11

Hazard ratios calculated from Cox proportional hazard models. Adjusted results include all variables in a single model.

short-acting method they discontinued (Table 5). Only 47 (13%) switched to the method that they had expressed a preference for in the interview prior to discontinuation. Thirty women became pregnant within 4 weeks of discontinuing; only one stopped contracepting to become pregnant.

4. Discussion

This study adds to a body of evidence suggesting that the quality of contraceptive counseling and method provision during the postpartum period fails to meet the needs and preferences of low-income women in Texas [11,12,16,17], and it highlights missed opportunities to provide access to the full range of contraceptive methods through policy and practice.

We found higher discontinuation rates than most other studies of short-acting hormonal use [4–10], likely reflecting the particular challenges faced by our study population of low-income, postpartum women. Notably, foreign-born Hispanic women were less likely to discontinue a short-acting method than U.S.-born Hispanics, which could reflect over-the-counter access in Mexico, personally or through social networks [18], or selection for enrollment in Title X or state family planning programs. Those who initiated use later in the postpartum period were less likely to discontinue than those who received a method from the hospital perhaps because those who initiate later have secured the means to obtain reproductive healthcare beyond the postpartum care covered by Medicaid for Pregnant Women. Side effects and access/cost were the most common reasons for discontinuation. Given the association between method preference and discontinuation, women are likely less motivated to continue using a method that was not their first preference in the face of unwelcome side effects or financial and logistical barriers.

In Texas, low-income women have few coverage options for postpartum contraception, and after the expiration of pregnancy-related coverage, there is no comprehensive autoenrollment or coverage transition into other publicly funded programs. Patients must independently seek alternative resources for contraception, which include state and county programs, each with its own eligibility criteria, and Title X-funded clinics. In short, affordable contraceptive options are disjointed and difficult to navigate.

Given the coverage context, policies that expand Medicaid eligibility,

Table 4
Reasons for short-acting hormonal method discontinuation among low-income women in Texas who used a short-acting method within 6 months after delivery and discontinued for reasons other than pregnancy, 2014–2018

	Injectable ($n = 170$)		Pill, patch, ring ($n = 158$)		Total ($n = 328$)[a]	
		(%)		(%)		(%)
Side effects[b]	68	(40.0)	53	(33.5)	121	(36.9)
Access/cost[c]	52	(30.6)	39	(24.7)	91	(27.7)
Preference for another method	30	(17.6)	15	(9.5)	45	(13.7)
Not sexually active	22	(12.9)	18	(11.4)	40	(12.2)
User dependency[d]	3	(1.8)	24	(15.2)	27	(8.2)
Other	6	(3.5)	6	(3.8)	12	(3.7)
Want another baby	3	(1.8)	2	(1.3)	5	(1.5)
No reason reported[e]	31	(18.2)	34	(21.5)	65	(19.8)

[a] Respondents could select more than one reason for discontinuing a method; therefore, column percentages do not sum to 100.
[b] Side effects include headaches, weight gain, period irregularity, etc.
[c] Access/cost include loss of insurance coverage, inability to afford prescription cost, difficulty scheduling or attending clinic appointments, etc.
[d] User dependency includes forgetting to take the pill, forgetting appointments for the shot or disliking the routine required to adhere to the method.
[e] Reasons for discontinuation were not collected prior to the 6-month interview.

Table 5
Method initiated within 4 weeks of discontinuing short-acting hormonal method among low-income women who used a short-acting method within 6 months after delivery, overall and by preference expressed at interview prior to discontinuation, 2014–2018

	Total ($n = 358$)		Method initiated after discontinuation was preferred at previous interview	
Method initiated after short-acting hormonal discontinuation		(%)[a]		(%)[b]
Sterilization or vasectomy	10	(2.8)	5	(50.0)
Long-acting reversible	44	(12.3)	33	(75.0)
Short-acting hormonal	31	(8.7)	7	(22.6)
Condoms	124	(34.6)	1	(0.8)
Withdrawal	52	(14.5)	0	(0.0)
Abstinence or no method[c]	67	(18.7)	0	(0.0)
Pregnant	30	(8.4)	1	(3.3)
Total	358	(100.0)	47	(13.1)

[a] Column percentage.
[b] Row percentage.
[c] Includes three respondents whose next method was natural family planning and one respondent whose next method was emergency contraception.

extend Medicaid for Pregnant Women further into the postpartum period and provide similar coverage for those who deliver with CHIP Perinatal would vastly increase contraceptive options. Our results suggest that expanding coverage would facilitate method continuation and narrow the gap between use and preferences.

Yet, access is likely not the only issue. Antenatal and postpartum visits are opportunities to engage preferences, provide guidance on side effects and equip women with the method of contraception that best suits their needs. However, few Texas women receive high-quality postpartum contraceptive counseling or are able to obtain their desired method, which is often LARC, during their postpartum visit [16,17]. Lack of procedural training is a barrier to postpartum LARC provision [19], and health professionals with less comfort with LARC are less likely to discuss and provide all available methods [19–22]. Our results suggest that providing a short-acting method instead of a more effective method, if preferred, is associated with discontinuation and subsequent use of less effective methods.

Expanding routine care beyond one or two postpartum visits and instituting regular provider follow-up would facilitate continuation or switching, as would connecting uninsured women to family planning programs and advising them on low-cost prescription resources. Additionally, changing short-acting hormonal dispensing protocols to offer a greater supply, moving them over-the-counter and widely offering self-administration of the injectable could expand access and increase continuation [23–26]. These changes would likely be beneficial to postpartum women who may be especially burdened by the logistical demands of seeking refills.

While our study population may be particularly disadvantaged in terms of circumstances and state policy, similar proportions of women use short-acting methods shortly after delivery in nationally representative samples [1]. Future research should address contraceptive use compared to preferences among other populations in order to better address postpartum contraceptive needs.

The preexisting gaps in postpartum contraceptive care we identified are likely exacerbated by the circumstances surrounding COVID-19. The proportion of women relying on a short-acting hormonal method as their first method after delivery will almost certainly increase due to diminished capacity to provide postpartum sterilization [27]. Indeed, as of July 2020, all hospitals from which we recruited study participants are only providing postpartum tubal sterilizations in the case of cesarean deliveries. Yet contraceptive preferences are unlikely to shift according to method availability, especially as many wish to delay or reduce childbearing in response to the pandemic [28].

In this context, the quality of service provision is more important than ever before. As clinical capacity fluctuates, extending the duration of public insurance and engaging innovative methods to maintain regular communication between providers and patients will be essential to eventually providing those who prefer LARC or sterilization with their desired method. As short-acting hormonal methods will serve as the best option for many during this time, clinics should provide telehealth, mail-order, drive-thru and self-administered contraception in order to help postpartum women fulfill their reproductive goals despite the intensified barriers presented by COVID-19 [29].

Limitations of this study include reporting on method use between baseline and the 3-month interview, noted previously, which may not be complete. Moreover, we did not collect reasons for discontinuation prior to the 6-month interview. Finally, this study population is not representative of all women with Medicaid-paid deliveries in Texas [12,30].

Our results demonstrate high rates of short-acting hormonal discontinuation and subsequent use of less effective methods among low-income, postpartum women in Texas despite their preferences for methods at least as effective as the pill, patch, ring or injectable. These findings highlight the importance of providing the full range of contraceptive methods shortly after delivery and expanding access to affordable contraception further into the postpartum period when, by choice or circumstance, women discontinue their initial method.

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