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Comparing Postpartum Visit Attendance with a Scheduled 2- to 3-Week or 6-Week Visit after Delivery

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Abstract

Objective To evaluate whether scheduling a 2- to 3-week versus 6-week postpartum visit results in higher visit attendance.

Study Design We conducted a secondary analysis of a quasi-experimental before–after study to compare postpartum visit attendance after changing routine scheduling of visits from 6 weeks to 2 to 3 weeks after delivery. Secondary outcomes include patient satisfaction and breastfeeding continuation at 3 and 6 months postpartum. We collected postpartum visit information through a chart review and conducted telephonic interviews at 3 and 6 months postpartum to assess satisfaction with visit timing and breastfeeding status. We performed multivariable analyses to assess predictors of visit attendance.

Results Women scheduled at 2 to 3 weeks postpartum demonstrated higher visit attendance (90.2%; 95% confidence interval [CI]: 86.6-93.9%) compared with 6 weeks (81.6%; 95% CI: 76.3-86.2%; p < 0.01). Predictors for visit attendance include postpartum visit timing, age, education, parity, prior miscarriage, and high-risk index pregnancy in multivariate analysis. Scheduling at 2 to 3 weeks postpartum increased visit completion in women who were younger and had lower educational attainment, high-risk index pregnancy, and no prior miscarriages. We found no differences in patient satisfaction or breastfeeding continuation at 3 and 6 months postpartum related to postpartum visit timing.

Conclusion Scheduling a 2- to 3-week postpartum visit is associated with higher attendance.

Keywords

- ► postpartum visit
- breastfeeding
- ► patient satisfaction
- ► maternal health

The postpartum period presents an opportunity to improve maternal health through assessing immediate pregnancy-related concerns such as physical recovery from birth, infant feeding, and mood disorders, as well as addressing long-term health through chronic disease management, contraception and birth spacing, and health maintenance. Yet, postpartum care is underutilized; risk factors for failure to attend postpartum visits include younger age, increased parity, minority

race or ethnicity, lower household income, public or no insurance, and poor prenatal care.^{2–5} Most of these factors are nonmodifiable and potentially interrelated. In theory, programs that address modifiable factors could improve health outcomes and decrease health disparities.⁶

The postpartum visit for women without high-risk medical issues has traditionally been scheduled 6 weeks after delivery; though, some women may perceive this timing as too late for their health care needs.^{7,8} With an earlier postpartum visit, women have the opportunity to discuss physical and mental health concerns that arise in the first

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few weeks after delivery and can potentially avoid unscheduled care in the emergency department. In addition, health care providers can offer more timely assessment and support for women experiencing challenges with breastfeeding and can potentially decrease early cessation of lactation.

The concept of an earlier postpartum visit is not new^{10,11}; however, the impact of this alternative model of care on health outcomes has not been evaluated. We previously reported the initial visit timing and contraception-related results from a quasi-experimental before–after study of women who had a scheduled 2- to 3-week postpartum visit compared with a 6-week postpartum visit. Women attended the postpartum visit a median of 18 days (range: 8–70 days) and 43 days (range: 16–63 days), respectively, after delivery. We performed this analysis to evaluate our hypothesis that scheduling a postpartum visit at 2 to 3 weeks after delivery would result in higher visit attendance compared with scheduling at 6 weeks. Secondary outcomes include patient satisfaction with the timing of the postpartum visit and breastfeeding continuation rates at 3 and 6 months postpartum.

Materials and Methods

We performed a planned secondary analysis using data from a quasi-experimental before-after study assessing outcomes after the Department of Obstetrics and Gynecology at the University of California, Davis (UC Davis) implemented a policy in June 2015 to change the routine timing of the scheduled postpartum visit from 6 weeks to 2 to 3 weeks after delivery. The first cohort consists of women scheduled for a 6-week postpartum visit, whereas the second cohort includes women who delivered after the policy change. The UC Davis Institutional Review Board approved this study.

The methods and participant characteristics have been previously described in detail. Briefly, the study enrolled women at 28 weeks' gestation or greater from two UC Davis Sacramento clinics and included only those women who planned to deliver at UC Davis Medical Center, return for postpartum care at one of the clinics, and delay a subsequent pregnancy for at least 1 year. Exclusion criteria included requiring assisted reproductive technologies to achieve the index pregnancy or planning vasectomy as their postpartum contraceptive method. All participants gave informed consent prior to completing a baseline questionnaire.

We obtained delivery and postpartum visit information through an electronic medical record review. We excluded women postenrollment who underwent sterilization or hysterectomy prior to their postpartum visit, had an intrauterine device (IUD) or implant placed during the delivery hospitalization, or did not deliver at the UC Davis. We called participants at 3 and 6 months after delivery to complete a 10- to 15-minute telephone questionnaire assessing breastfeeding status (exclusively breastfeeding, breastfeeding with supplementation, or not breastfeeding), satisfaction with the timing of the postpartum visit, completion of the pediatrician visit, contraception use, and repeat pregnancies. They did not receive any compensation for participation.

Table 1 Characteristics of obstetric study population differentiated by postpartum visit completion through 12 weeks postpartum

Characteristic	Attended postpartum visit ($n = 440$)	Did not attend postpartum visit $(n = 72)$	p-Value	
Timing of scheduled postpartum visit ^a			<0.01	
6 wk after delivery	209 (81.6)	47 (18.4)		
2–3 wk after delivery	231 (90.2)	25 (9.8)		
Age (years) ^b	30 ± 5.2	26.5 ± 5.4	<0.01	
Age < 30 years ^a	198 (45)	49 (68.1)	<0.01	
Hispanic ethnicity ^a	118 (26.8)	27 (37.5)	0.07	
Race ^a	ace ^a			
White	289 (65.7)	51 (70.8)	-	
Black	42 (9.5)	9 (12.5)		
Asian	60 (13.6)	6 (8.3)		
Native American and Pacific Islander	20 (4.5)	1 (1.4)		
Other ^c	29 (6.6)	5 (6.9)		
Education ^d			<0.01	
High school graduate or less	78 (17.7)	33 (45.8)		
Some college	129 (29.3)	26 (36.1)		
College graduate	127 (28.9)	9 (12.5)	_	
Graduate school	106 (24.1)	4 (5.6)		
Work status ^d			<0.01	
Full-time employment	233 (53)	18 (25)		

(Continued)

Table 1 (Continued)

Characteristic	Attended postpartum visit ($n = 440$)		<i>p</i> -Value	
Part-time employment	57 (13) 12 (16.7)			
Unemployed	54 (12.3)	17 (23.6)		
Homemaker	74 (16.8)	17 (23.6)		
Full-time student	22 (5)	8 (11.1)		
Insurance ^d			<0.01	
Public	104 (23.7)	43 (59.7)		
Private	310 (70.8)	26 (36.1)		
Military	24 (5.5)	3 (4.2)		
Relationship status ^d			0.11	
Single	35 (8)	11 (15.3)		
Partnered, living with partner	373 (85)	55 (76.4)		
Partnered, not living with partner	31 (7.1)	6 (8.3)		
Gravidity ^d			0.65	
1	138 (31.4)	22 (30.6)		
2	130 (29.5)	21 (29.2)		
3	79 (18)	13 (18.1)		
4	43 (9.8)	7 (9.7)		
5	27 (6.1)	2 (2.8)	1	
6 or more	23 (5.2)	7 (9.7)		
Parity ^d			0.23	
0	221 (50.2)	30 (41.7)		
1	143 (32.5)	24 (33.3)		
2	44 (10)	8 (11.1)		
3 or more	32 (7.3)	10 (13.9)		
Prior miscarriage ^a	138 (31.4)	13 (18.1)	0.03	
Prior abortion ^a	85 (19.3)	11 (15.3)	0.52	
Prior cesarean delivery ^a	65 (14.8)	16 (22.2)	0.12	
Pregnancy planned ^a	291 (66.1)	34 (47.2)	<0.01	
Planning postpartum LARC ^a	84 (19.1)	17 (23.6)	0.42	
Primary obstetric provider ^d			<0.01	
Resident physician	150 (34.1)	46 (63.9)		
General faculty	169 (38.4)	4 (5.6)		
Maternal-fetal medicine faculty	121 (27.5)	22 (30.6)		
Index pregnancy considered high risk ^e	179 (40.7)	39 (54.2)	0.04	
Index preterm delivery ^a	30 (6.8)	10 (13.9)	0.05 ^f	
Index vaginal delivery ^a	306 (69.5)	54 (75)	0.41	

Abbreviation: LARC, long-acting reversible contraception.

Note: All data are presented as n (%) or mean \pm standard deviation.

^aFisher's exact test.

^bStudent's *t*-test.

^cOther includes participants who identified with more than one race.

dChi-square test.

eHigh-risk pregnancy defined as having preexisting maternal comorbidities (e.g., type 2 diabetes or chronic hypertension), history of prior adverse birth outcomes (e.g., preterm delivery, intrauterine fetal demise), or current pregnancy condition (e.g., cervical insufficiency, multiple gestations, fetal anomaly).

Fisher's exact test, p = 0.054.

The primary outcome of this secondary analysis was postpartum visit attendance by 12 weeks in women scheduled for a 6-week or 2- to 3-week postpartum visit. Additionally, we identified predictors for postpartum visit attendance and evaluated whether scheduling a 2- to 3-week postpartum visit was associated with increased attendance compared with a 6-week visit. We assessed satisfaction with the timing of the postpartum visit with a single question ("How satisfied are you with the timing of your postpartum visit?") asked at the 3 months' contact using a 5-point Likert scale.

We used chi-square, Fisher's exact, and Student's t-tests to perform comparisons between groups and to identify characteristics of women who completed postpartum attendance. We considered a p-value of <0.05 as significant. Variables with p-values of <0.1 in the univariate analysis

were included in the logistic regression model to examine which variables remained significantly associated with post-partum visit completion after adjusting for covariates. In addition, we tested for multicollinearity to eliminate redundant variables and decided a priori to include ethnicity, age, and parity, which are known predictors of postpartum visit completion, in the logistic regression model.^{2,5} We used the REDCap electronic data system for data management¹³ and SPSS 24 (IBM, Armonk, NY) for statistical analysis.

Results

Baseline characteristics based on postpartum visit attendance are presented in **Table 1**. Women scheduled for a 2- to 3-week postpartum visit demonstrated higher visit

Table 2 Multivariable predictors of postpartum visit attendance through 12 weeks after delivery

	n	Odds ratio	95% confidence interval	<i>p</i> -Value
Timing of scheduled postpartum visit				<0.01
6 wk	256	0.42	0.24-0.74	
2–3 wk	256	Referent		1
Age				0.04
< 30 years	247	0.51	0.27-0.97	1
≥ 30 years	265	Referent		7
Ethnicity				0.46
Hispanic	145	1.26	0.69-2.31	7
Not Hispanic	367	Referent		1
Parity				
0	251	Referent		
1	167	0.60	0.31-1.15	0.13
2	52	0.78	0.31-1.97	0.60
3 or more	42	0.38	0.14-0.99	0.05 ^a
Prior miscarriage				0.01
Yes	151	Referent		1
No	361	0.41	0.21-0.83	1
Planned pregnancy			0.29	
Yes	325	Referent		1
No	187	0.74	0.43-1.29	7
Education				
High school graduate or less	111	Referent		
Some college	155	2.45	1.28-4.67	<0.01
College graduate	136	5.63	2.36-13.43	<0.01
Graduate school	110	10.60	3.25-34.62	<0.01
High-risk pregnancy ^b				0.04
Yes	218	Referent		7
No	294	1.80	1.03-3.17	7

^aFisher's exact test, p = 0.048.

^bHigh-risk pregnancy defined as having preexisting maternal comorbidities (e.g., type 2 diabetes or chronic hypertension), history of prior adverse birth outcomes (e.g., preterm delivery, intrauterine fetal demise), or current pregnancy condition (e.g., cervical insufficiency, multiple gestations, fetal anomaly).

attendance (90.2%; 95% confidence interval [CI]: 86.6–93.9%) by 12 weeks after delivery compared with those scheduled at 6 weeks postpartum (81.6%; 95% CI: 76.3–86.2%; p < 0.01).

In univariate analysis, education level, work status, and insurance type were highly correlated with each other. We assumed that education level mediates work and insurance status and, therefore, only included education level in the regression model. Similarly, pregnancy considered high-risk, preterm delivery of index pregnancy, and primary obstetric provider were highly correlated. Since having a high-risk pregnancy influences delivery and selection of obstetric provider, we only included high-risk pregnancy in the regression model.

In our regression model, timing of the postpartum visit, age, education level, parity, history of prior miscarriage, and high-risk index pregnancy remain predictors of postpartum visit attendance within 12 weeks after delivery (**~Table 2**).

Among women with risk factors for nonattendance, a scheduled 2- to 3-week postpartum visit was associated with increased visit completion in women with age less than 30 years, lower educational attainment (i.e., high school graduate or less), a high-risk pregnancy, and no prior miscarriages (**Table 3**).

For women who attended at least one postpartum visit within 12 weeks, most reported being somewhat or very satisfied with the timing of the scheduled visit (6 weeks: 89.1%, 95% CI: 83.3-93.4%; 2-3 weeks: 88.2%, 95% CI: 82.7-92.5%; p=0.87).

Most participants intended to breastfeed after delivery (93.6%, 95% CI: 91.1–95.5%), with no differences by the scheduled timing of postpartum visit (p = 0.15) or by completed visit attendance (p = 0.11). Overall breastfeeding continuation at 3 and 6 months after delivery did not differ based on postpartum visit scheduling (\sim Table 4).

Table 3 Participant characteristics associated with postpartum visit attendance when scheduled at 6 weeks compared with 2 to 3 weeks after delivery

	Completed scheduled 6-wk visit	Completed scheduled 2- to 3-wk visit	p-Value ^a
Age < 30 years	102 (75)	96 (86.5)	0.03
Education			
High school graduate or less	29 (56.9)	49 (81.7)	<0.01
Some college	68 (81)	61 (85.9)	0.52
College graduate	53 (89.8)	74 (96.1)	0.18
Graduate school	59 (95.2)	47 (97.9)	0.63
Work status			
Full-time employment	108 (90)	125 (95.4)	0.14
Part-time employment	28 (80)	29 (85.3)	0.75
Unemployed	30 (75)	24 (77.4)	>0.99
Homemaker	32 (71.1)	42 (91.3)	0.02
Full-time student	11 (68.8)	11 (78.6)	0.69
Insurance			
Public	44 (62.9)	60 (77.9)	0.05 ^b
Private	151 (88.3)	159 (96.4)	<0.01
Military	13 (92.9)	11 (84.6)	0.60
Parity			
0	109 (84.5)	112 (91.8)	0.08
1	69 (82.1)	74 (89.2)	0.27
2	21 (80.8)	23 (88.5)	0.70
3 or more	10 (58.8)	22 (88)	0.06
High-risk index pregnancy ^c	78 (73.6)	101 (90.2)	<0.01
No prior miscarriages	151 (79.1)	151 (88.8)	0.02

Note: Data presented as n (%).

^aChi-square test used for comparison.

^bFisher's exact test, p = 0.049.

^cHigh-risk pregnancy defined as having preexisting maternal comorbidities (e.g., type 2 diabetes or chronic hypertension), history of prior adverse birth outcomes (e.g., preterm delivery, intrauterine fetal demise), or current pregnancy condition (e.g., cervical insufficiency, multiple gestations, fetal anomaly).

Table 4 Breast milk feeding status at the postpartum visit, at 3 months, and at 6 months after delivery by scheduling timing of visit among women who intended to breastfeed

	Scheduled 6-wk post- partum visit	Scheduled 2- to 3-wk postpartum visit	p-Value ^a
Postpartum visit	N = 200	N = 214	0.03
Breast milk feeding exclusively	153 (76.5)	168 (78.5)	
Mixed feeding	26 (13)	37 (17.3)	
Not breast milk feeding	21 (10.5)	9 (4.2)	
3 months	N = 211	N = 201	0.97
Breast milk feeding exclusively	114 (54)	106 (52.7)	
Mixed feeding	48 (22.7)	47 (23.4)	
Not breast milk feeding	49 (23.2)	48 (23.9)	
6 months	N = 175	N = 184	0.25
Breast milk feeding exclusively	75 (42.9)	75 (40.8)	
Mixed feeding	41 (23.4)	33 (17.9)	
Not breast milk feeding	59 (33.7)	76 (41.3)	

Note: Data presented as n (%).

Discussion

Scheduling a postpartum visit at 2 to 3 weeks compared with 6 weeks after delivery is associated with higher postpartum visit completion, even when controlling for other risk factors for failure to follow-up. Women who are feeling well may choose not to attend a visit scheduled at 6 weeks after delivery, especially if they face barriers with childcare or transportation. In contrast, women who are still recovering from childbirth at 2 to 3 weeks after delivery and questions during this transition period may have prompted the increase in visit attendance.

Our results of increased attendance with an earlier postpartum visit is consistent with a previous study showing higher follow-up among women who have the first appointment scheduled within 3 weeks after delivery. 14 In contrast, two randomized trials comparing IUD initiation with a 3versus 6-week postpartum visit¹⁵ and long-acting reversible contraception (LARC) initiation with a 3- and 6-week versus 6-week postpartum visit 16 did not demonstrate a difference in attendance with an earlier visit. While clinical trial participants are typically motivated to follow-up for studyrelated activities, sociodemographic characteristics appear to be more influential in determining postpartum visit attendance than enrolling in a trial. For instance, Baldwin et al¹⁵ found that having Medicaid insurance was the strongest predictor of failure to follow-up. Our study population included women with overall fewer risk factors for nonattendance, likely contributing to the higher follow-up rates.

Despite the increase in postpartum care utilization with a 2- to 3-week visit, we did not demonstrate improvements in specific postpartum health outcomes. We previously found lower LARC initiation rates at the initial postpartum visit due to patient and provider barriers to IUD insertion at 2- to

3-week postpartum despite evidence supporting the safety and acceptability of IUD insertion at this time point. ^{12,17,18} In this analysis, we did not find any differences in overall breastfeeding continuation, which may be related to the overall high baseline rates of breastfeeding in our participants compared with U.S. national rates. ¹⁹ While increased postpartum visit attendance with an earlier visit did not increase contraception use or breastfeeding continuation, we did not assess whether timely assessment and intervention at an earlier visit would impact other aspects of postpartum health, such as postpartum depression.

We chose a quasi-experimental before-after study design, as opposed to a randomized trial, to reflect real-world outcomes after implementation of scheduling an earlier postpartum visit. However, a limitation of this study design is the possibility that external factors, other than the postpartum visit scheduling policy change itself, influenced our outcomes, such a desire or need to present at another institution for the postpartum visit. In addition, our participants are relatively homogenous demographically with overall high postpartum visit completion and breastfeeding continuation, which limits the generalizability of our findings. Furthermore, although we only included women who would potentially need contraception at the postpartum visit, we excluded a relatively small proportion of the enrolled participants for immediate postpartum LARC initiation (n = 1; 0.2%) and for female permanent contraception (n = 46; 7.8%).¹²

Recent recommendations propose that all women have initial contact with a maternal care provider within the first 3 weeks after delivery. Our study demonstrates that scheduling an office visit at 2 to 3 weeks postpartum can successfully increase receipt of postpartum care using existing resources, especially among women at a high risk of not attending a postpartum visit. However, the lack of

^aChi-square test used for comparison.

improvement in contraceptive uptake¹² or breastfeeding rates indicates that solely attending the postpartum visit does not necessarily result in improvement in these health outcomes. Rather, visit attendance is only one step toward optimizing maternal and infant health. Additional evaluations of our approaches to postpartum care provision during these visits are needed to ensure that clinicians are meeting women's needs after delivery.

Note

The content is solely the responsibility of the authors and does not necessarily represent the official views of the NIH.

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Conflict of Interest

None.

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