

Maternal Risk Factors Associated with Poor Postpartum Healthcare Utilization

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Keywords: Postpartum visit, compliance, health services, health literacy

Posted Date: March 13th, 2020

DOI: <https://doi.org/10.21203/rs.3.rs-17144/v1>

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Abstract

Objectives: Perceptions regarding the benefits of postpartum care among mothers and clinicians often differ. Clinicians generally perceive postpartum care as preventative, whereas pregnant and postpartum women often lack knowledge about its preventative benefits. As a result many women choose not to return for scheduled postpartum care visits.

Methods: To examine if clinically relevant demographic and birth related factors are informative predictors for postpartum healthcare follow-up care, we conducted a population based cohort study of all women who delivered a child in 2012 – 2015 at the New York Mount Sinai Hospital Obstetrics and Gynecology Ambulatory Practice. Data was ascertained from electronic health records.

Results: Of the 4,240 unique women who delivered between 2012-2015 at the Mount Sinai Hospital OB/GYN Ambulatory Practice, 1,685 (39.7%) did not return for their postpartum care follow-up appointment. The number of prenatal visits, maternal age, and parity were significantly associated with postpartum care follow-up.

Conclusion for Practice: The purpose of this study was to determine identifiable factors associated with reduced postpartum healthcare follow-up utilization. Several clinically relevant variables were associated with the reduced likelihood for attending postpartum care visits. Because pregnant women represent a medically captured population, the results of this study point to the need to increase postpartum healthcare literacy during perinatal appointments especially among younger mothers, women who have had previous deliveries, and those with fewer prenatal visits.

Plain English Summary

Beliefs regarding the benefits of early maternal care among new mothers and clinicians often differ. Whereas postpartum care among healthcare workers is generally perceived by clinicians as preventative, thereby providing the opportunity to assess physical, social and psychological adjustment to early motherhood, pregnant and postpartum women often lack knowledge about the importance of postpartum healthcare and its preventative benefits.

The objective of this study was to explore postpartum medical care utilization in a large urban cohort of women living in low socioeconomic status who represent one of the most vulnerable populations for postpartum complications and to determine whether any clinically relevant maternal and obstetric risk factors were associated with the lack of postpartum follow-up.

Of the 4,240 unique women who delivered between 2012-2015 at the Mount Sinai Hospital OB/GYN Ambulatory Practice, 1,685 (39.7%) did not return for their postpartum care follow-up appointment. Poor postpartum follow-up was associated with the number of prenatal visits attended, maternal age, and parity.

Because pregnant women represent a medically captured population, who are regularly seeking treatment, the results of this study point to the broader need to increase postpartum care literacy during perinatal appointments and the specific opportunity to engage with groups at particular risk for poor postpartum follow-up.

Significance

What is known: Perceptions regarding the benefits of early maternal care among mothers and clinicians often differ. The importance of postpartum healthcare is often poorly understood. Research shows those at greatest risk for complications are among least likely to attend postpartum follow-up visits.

What this study adds: Because pregnant women represent a medically captured population, determining identifiable factors associated with the reduced likelihood of postpartum healthcare follow-up may assist in targeting individuals for intervention. Perinatal health literacy programs directed towards younger mothers, women with fewer prenatal visits, and those with increased parity may improve postpartum attendance and subsequent health outcomes.

Introduction

The most vulnerable time for both the mother and her newborn occurs not during pregnancy, but rather after delivery, in the postpartum period (Cheng et al. 2006; WHO, 2014). Psychiatric complications, abnormalities in maternal-infant attachment as well as life threatening physical conditions such as hemorrhage, infection, and anemia are readily treatable when identified. Unfortunately, the importance of postpartum healthcare remains poorly understood and follow-up visits irregularly attended (Chu et al. 2007).

Towards the effort of better understanding opportunities for intervention, a number of studies have recently begun exploring the various factors that may influence a woman's decision to utilize available postpartum services. Importantly, women living in low SES, whom reportedly comprise the group at greatest risk for complications after childbirth, are also the group least likely to take advantage of available postpartum services (Department of Health and Human Services, 1998). Even when financial concerns are eliminated through government subsidy, barriers to postpartum care utilization remain. Factors including inadequate childcare (Smith et al. 2000), distrust of providers (Murphy et al. 2014), lack of transportation and/or required travel time (Syed et al. 2013; Bryant et al, 2006), limited social support (Morgan et al. 2018), perceived racism (Sondik et al. 2010), cultural and religious factors (Goodman et al., 2013), perceived negative caregiver traits (Heaman et al. 2015) and poor health literacy (Abrams et al. 2009) may further reduce the likelihood of a new mother returning for available postpartum care.

The Mount Sinai Hospital OB/GYN Ambulatory Practice (OBGYN-AP) registers over 25,000 visits and approximately 1,000 births annually. The population served is primarily comprised of urban minority women who are economically disadvantaged. Because of the increased understanding of the physical and psychological importance of postpartum care utilization (ACOG Committee Opinion No. 736, 2018),

the primary aim of this study was to utilize electronic health records (EHR) from the OBGYN-AP as a means to determine if clinically relevant maternal and obstetric risk factors are associated with poor postpartum care follow-up. Understanding the risk factors associated with decreased utilization will not only address a current gap in the literature, but may also assist in developing interventions to improve postpartum healthcare attendance and postpartum mental health outcomes among those at greatest risk for postpartum depression (Chu et al. 2007; Morgan et al. 2018).

Methods

Study population

The study cohort consisted of the entire population of women seen in the Mount Sinai Hospital OB/GYN Ambulatory Practice (OBGYN-AP) between January 1, 2012 and December 31, 2015. The Mount Sinai Hospital OBGYN-AP serves a population of primarily Hispanic and African-American women who reside in the inner city. Of the women who receive care in the Mount Sinai Hospital OBGYN-AP, 88% are enrolled in a United States government funded healthcare plan. The study was performed in compliance with the Mount Sinai School of Medicine Program for the Protection of Human Subjects and in accordance with the Health Insurance Portability and Accountability Act (HIPAA) security rule guidelines enacted in 2003.

Outcomes

Postpartum care follow-up is defined as a medical evaluation visit within 6 weeks after childbirth.

Exposures

A requirement for an exposure variable was two-fold. First, the variable must be available as an electronic health record (EHR) at the Mount Sinai Hospital OBGYN-AP and must represent evidence of a verifiable postpartum visit. Second, because it is possible that a woman appeared at the clinic, checked in, but subsequently declined clinical evaluation or was not seen by a practitioner, the variable recorded must also be considered “clinically relevant” to assure practitioner involvement during the visit.

Since 2010, the Mount Sinai Hospital OBGYN-AP has been prospectively capturing all healthcare utilization using EHR. Diagnostic information is based on the International Classification of Diseases (ICD) codes. Dates of inclusion were selected to conform to the first and last complete years of available data at the time of analysis.

Selected Exposure variable

The Edinburgh Postnatal Depression Scale (EPDS; Cox et al. 1987) is universally provided to all women at the OBGYN-AP who return for their postpartum visit as an initial step towards assessing mood change in the postpartum period. Each woman is offered a validated version of the EPDS in her own language in the examination room prior to meeting with the medical provider. The EPDS is a ten-item self-report instrument designed to assess symptoms associated with depression using a scale of 0–30. While it

cannot be used to provide a diagnosis of depression, it is an effective 1st stage screening tool for measuring the postpartum mood changes associated with postpartum depression (Cox et al. 1987). Because a “hard stop” was programmed into the postpartum medical record, clinicians must enter the EPDS mood assessment score into the chart before it can be closed and the patient can be released.

Statistical Analysis

The aim of the analysis was two-fold. First, we aimed to determine the rate of woman who delivered a baby at the Mount Sinai Hospital and did not return for postpartum care at the OBGYN-AP. Second, we aimed to explore whether there was any association between postpartum care utilization at the OBGYN-AP and demographics, maternal behaviors and obstetric outcomes. Covariates were selected based on previous research into postpartum healthcare compliance as well as postpartum mood change (Gaynes et al. 2005; Silverman et al., 2017) and can be found in Table 1.

We estimated the relative risk (RR) of postpartum follow-up care rate ratios from Poisson regression models fitted to the data. RRs were calculated for each of the covariates in the model. The associated two-sided 95% Wald-type confidence intervals (CI) were calculated, corresponding to a statistical test on the two-sided 5% level of significance. Data management and all statistical models were conducted using SAS software, version 9.4.

Results

Demographic and Delivery Characteristics of the Study Cohort

Between 2012 and 2015, there were 4,240 singleton deliveries from unique women. The mean age of the mothers was 27 years (Range 14-51; SD=6.34). 2,206 women (52.0%) self-identified as Hispanic/Latino; 1,304 women (30.8%) identified as African American; 196 women (4.7%) identified as White/Caucasian and; 108 women (2.5%) identified as Asian, the remaining 426 women (10.0%) identified as either Native American, Pacific Islander or “Other.”

Vaginal deliveries accounted for 2755 deliveries (65%) whereas 1485 women (35%) delivered via cesarean section. The average gestational age of delivery was 38.4 weeks (range 16-46; SD=2.5); 479 (11%) were born preterm (before 37 weeks gestation) and 97 (2%) were born very preterm (before 32 weeks gestation). 1604 (38%) of the deliveries were identified as “high risk”, threatening the health of the mother and/or the fetus. 795 (19%) of the delivered infants were initially sent to the neonatal intensive care unit (NICU). Additional characteristics of the cohort are provided in Table 1.

Postpartum care follow-up and EPDS Screening

Of the 4240 unique women who delivered between 2012 and 2015, 2555 (60.3%) returned for their postpartum visit with 2532 (99.1%) of these women having an EMR record of being screened for postpartum mood change in the form of a clinician recorded EPDS score. Of the 23 women who did not

have a recorded EPDS score in their medical record, nine included a clinician note indicating that the patient was in fact screened, two had a note indicating that the patient “declined” screening, four EPDS assessments were noted as incomplete secondary to a language barrier and one was noted incomplete due to “illiteracy.”

Factors associated with poor postpartum care utilization

Poor care utilization was significantly associated with younger maternal age, RR = 1.13 [1.00-1.28]; parity > 2, RR = 1.20 [1.09-1.31] and; fewer prenatal visits (No prenatal visit, RR = 2.68 [2.46-2.92]; 1-5 prenatal visits, RR = 1.79 [1.65-1.94]). Additional factors are provided in Table 2.

Discussion

In a large urban community population-based study we explored postpartum medical care utilization and whether clinically relevant maternal and obstetric risk factors were associated with postpartum follow-up among women living in low-SES whom had recently given birth. Our results confirm that even though postpartum care utilization is well understood by clinicians to be an important preventative care component of maternal health, many women nevertheless fail to utilize these services, even when they are available. More importantly, women living in low-SES, who are also among the group reportedly at greatest risk for developing postpartum complications, represent the group with the lowest utilization rates (Chu et al. 2007; Morgan et al. 2018). Because a considerable amount of attention has recently been directed towards postpartum care (ACOG Committee Opinion No. 736, 2018) this study was designed to explore identifiable factors associated with reduced postpartum care utilization.

Not surprisingly, perceptions regarding the benefits of early maternal care among new mothers and clinicians often differ (Martin et al. 2014). Postpartum care in the United States is generally perceived by clinicians as preventative, providing the opportunity to assess physical, social and psychological adjustment to early motherhood (Blenning et al. 2005), whereas recent research has demonstrated that pregnant and postpartum women often lack knowledge about postpartum health concerns and its preventative benefits (Martin et al. 2014). This work demonstrates that factors beyond affordability (e.g. The Affordable Care Act of 2010) represent existing barriers to postpartum care utilization (Ko et al. 2013). Indeed, our findings reveal that despite the vast majority of women in this study having similar government subsidized healthcare, those women who had fewer prenatal visits, were of younger maternal age, or had delivered more children were significantly less likely to make use of available postpartum follow-up healthcare compared to those women who engaged in regular prenatal care, were of older maternal age, or had fewer children. While numerous reasons exist why a woman may elect not to return for available postpartum care, (Smith et al. 2000; Murphy et al. 2014; Syed et al. 2013; Bryant et al. 2006) evidence suggests that those who do may experience improved childhood outcomes (Sondik et al. 2010; WHO, 2014).

Awareness of health literacy disparities among low-SES and minority populations has been steadily increasing (Nesbitt and Palomarez, 2016). However, the relationship between low-SES and health service

utilization is complex with factors that remain mostly undetermined or poorly understood (Muennig et al. 2005). What is known however is that the relative increase in morbidity with lower income accounts for a greater loss of health than any risk factor other than normal human aging (Cooper et al. 2012). The widely held hypothesis that poor health literacy across virtually all areas of medical care is a major determinant in the observed disparities among the lower-SES, minority populations and those with lower academic achievement (Mantwill et al. 2015). To this point, the American Congress of Obstetricians and Gynecologists (ACOG) released a Committee Opinion noting the need for increased attention to patients health literacy needs in the effort to promote better health outcomes as they relate to reproductive health (ACOG Committee Opinion No. 676, 2016). Supporting this recommendation, a recent meta-analysis exploring literacy and health disparity confirmed that health literacy is directly related to health utilization as it relates to reproductive health (Mantwill et al. 2015). Unfortunately, the majority of studies surveyed only focused on the relationship between health literacy and prenatal care, as opposed to postnatal care. The few studies surveyed that were focused on postnatal care were generally limited to birth outcomes, glucose follow-up or breast feeding behaviors (Lu and Prentice, 2002). More so, these studies generally sampled those who returned for postpartum care thereby assessing those who were either already literate about the benefits of postpartum care or simply compliant patients.

Given the current attention postpartum depression has been receiving, it is important to note that lower health literacy has also been shown to be associated with increased postpartum depression symptomatology (Weiss et al. 2009). Similarly, other studies have shown that improving health literacy around postpartum mood improves postpartum depressive symptomatology in those women who choose to return for screening (Howell et al. 2012). While this association seems to be promising, the association may in part represent a causality dilemma. That is, those women experiencing the more severe depressive symptomatology likely do not possess the necessary resources or do not perceive the need (Nadeem et al. 2009) to return for their follow-up care appointment. This is something that should be explored further. Nevertheless, our findings further underscore that given how pregnant and peripartum women represent a medically captured population, additional efforts towards increasing health literacy during these appointments may encourage more equitable care, further promote healthy reproductive behaviors as well as assist in increasing postpartum service utilization among those at greatest risk.

Although these findings are of potential importance, we do recognize some possible study limitations. First, the population explored is a clinical sample from a care-based clinic. As a convenience sample, it may not represent the entire population of women. Second, we only assessed each woman once during the sampling years. While it is probable that some woman gave birth more than once during the 2012-2015 time period assessed, their attendance or absence, whether repeated or not was not included. This methodology was chosen to avoid the problem of correlated observations between successive births and seemed to be the clearest approach. Third, the data we utilized was from electronic medical records and as such available data is subject to clinician detection, diagnostic certainty and recording accuracy. This is a well-understood limitation of medical registries and registry-based resolution. Finally, by design, the study's outcome variable only represented treatment-seeking behavior. While, we did not assess the reasons why women elected to return, it is possible that some women returned without choice or without

an understanding of choice. As such, the actual incidence of postpartum follow-up, as a function of voluntary behavior may have been overestimated.

Finally, in the effort to further reduce maternal morbidity and mortality, recent recommendations from the American College of Obstetricians and Gynecologists (ACOG) have noted the importance of a comprehensive ‘fourth trimester’ of care, transitioning from the traditionally recommended single postpartum visit within the first 6 weeks to multiple visits over the three months following child delivery. As noted in the ACOG Committee Report, “All women should ideally have contact with a maternal care provider within the first 3 weeks postpartum” (ACOG Committee Opinion No. 736, 2018). Similarly, in recent years there has been both lay and legislative initiatives to provide and in some cases mandate universal depression screening in the postpartum period. However, these efforts will remain largely ineffective as long as a large percentage of high-risk women continue to choose not to return for postpartum healthcare services. Given that pregnant women represent a population that is receiving regular medical care, the results of this study point to the need and opportunity to address the importance of postpartum care follow-up *during* perinatal appointments and in the immediate window following delivery. Indeed, novel approaches towards enhancing this understanding and/or conveying the importance of postpartum healthcare to those least likely to make use of these services are needed. Further research should therefore focus on interventions to improve postpartum health literacy for those at greatest risk for poor postpartum healthcare utilization.

Conclusion

We set out to examine if any clinically relevant demographic and birth related factors were informative regarding reduced postpartum care follow-up utilization. While the importance of postpartum healthcare utilization has gained considerable attention, the lack of postpartum care follow-up remains a significant problem. Several clinically relevant variables were associated with reduced postpartum care follow-up. Because pregnant women represent a medically captured population, the results of this study point to the need to increase postpartum care literacy during perinatal appointments.

Declarations

Ethical Approval and Consent: The study was approved by Mount Sinai’s Program for the Protection of Human Subjects. The authors assert that all procedures contributing to this work comply with the ethical standards of the relevant national and institutional committees on human experimentation and with the Helsinki Declaration of 1975, as revised in 2008.

Consent for publication: N/A

Availability of supporting data: N/A

Competing interests: Authors declare that they have no competing interests.

Funding: None to report

Author Contributions: Dr. Silverman and Dr. Loudon had full access to all of the data in the study and take responsibility for the integrity of the data and the accuracy of the data analysis; Study concept and design: All authors; Acquisition, analysis, or interpretation of data: All authors; Drafting of the manuscript: Silverman, Loudon; Critical revision of the manuscript for important intellectual content: All authors; Statistical analysis: Silverman; Administrative, technical, or material support: All authors.

Acknowledgements: None

Availability of Data and Materials: All data presented in this manuscript are stored by the research group of the authors on secure servers at the Icahn School of Medicine at Mount Sinai and handled confidentially. Access to the data is only available to Drs. Silverman and Loudon and cannot be shared secondary to institutional policy.

Abbreviations

ACOG – American College of Obstetrics & Gynecology

CI – confidence interval

EHR - electronic health records

EPDS - Edinburgh Postnatal Depression Scale

HIPAA - Health Insurance Portability and Accountability Act

ICD - International Classification of Diseases

OBGYN-AP - Obstetrics & Gynecology Ambulatory Practice at Mount Sinai

NICU - neonatal intensive care unit

RR – relative risk

WHO – World Health Organization

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Tables

Table 1. Patient Characteristics

	Good Follow-Up	Poor Follow-Up	Overall
Maternal Age			
15-19	253 (10%)	204 (12%)	457 (11%)
20-24	713 (28%)	473 (29%)	1186 (28%)
25-29	684 (26%)	442 (27%)	1126 (27%)
30-34	551 (21%)	331 (20%)	882 (21%)
35-39	292 (11%)	153 (9%)	445 (10%)
40+	94 (4%)	50 (3%)	144 (3%)
Median [Q1-Q3]			
Race	38 Missing	27 Missing	65 Missing
White	128 (5%)	68 (4%)	196 (5%)
Black	762 (30%)	542 (33%)	1304 (31%)
Asian	77 (3%)	31 (2%)	108 (3%)
Other	1582 (62%)	985 (61%)	2567 (61%)
Ethnicity	115 Missing	94 Missing	209 Missing
Non-Hispanic	1107 (45%)	718 (46%)	1825 (45%)
Hispanic	1365 (55%)	841 (54%)	2206 (55%)
Parity			
0	549 (21%)	275 (17%)	824 (19%)
1-2	1589 (61%)	994 (60%)	2583 (61%)
>2	449 (17%)	384 (23%)	833 (20%)
# Prenatal Visits			
0	19 (1%)	141 (8%)	160 (4%)
1-5	421 (16%)	574 (35%)	995 (23%)
6-12	1690 (65%)	819 (50%)	2509 (59%)
>12	457 (18%)	119 (7%)	576 (14%)
Median [Q1-Q3]	10 [7-12]	6 [3-10]	9 [5-11]
Gestational Age (Weeks)	1 Missing	4 Missing	5 Missing
<32	59 (2%)	38 (2%)	97 (2%)
32-36	220 (9%)	162 (10%)	382 (9%)
37-41	2305 (89%)	1447 (88%)	3752 (89%)
42+	2 (<1%)	2 (<1%)	4 (<1%)
Median [Q1-Q3]	39.29 [38.29-40.29]	39.14 [38.00-40.29]	39.29 [38.14-40.29]
Season of Delivery			
Fall	642 (25%)	449 (27%)	1091 (26%)
Spring	637 (25%)	354 (21%)	991 (23%)
Summer	691 (27%)	431 (26%)	1122 (26%)
Winter	617 (24%)	419 (25%)	1036 (24%)
Year of Delivery			
2012	664 (26%)	434 (26%)	1098 (26%)
2013	689 (27%)	370 (22%)	1059 (25%)
2014	668 (26%)	396 (24%)	1064 (25%)
2015	566 (22%)	453 (27%)	1019 (24%)
High Risk			
No	1602 (62%)	1034 (63%)	2636 (62%)
Yes	985 (38%)	619 (37%)	1604 (38%)
NICU			
No	2101 (81%)	1344 (81%)	3445 (81%)
Yes	486 (19%)	309 (19%)	795 (19%)
Mode of Delivery			
CSVD	1687 (65%)	1068 (65%)	2755 (65%)
Cesarean	900 (35%)	585 (35%)	1485 (35%)
Minutes to Hospital by Public Transportation			
<40			
≥40	1678 (65%)	1079 (65%)	2757 (65%)
Median [Q1-Q3]	909 (35%)	574 (35%)	1483 (35%)
	32.12 [14.52-42.35]	33.35 [10.78-41.07]	33.22 [10.78-41.07]
Minutes to Hospital by Driving			

<20	1450 (56%)	943 (57%)	2393 (56%)
≥20	1137 (44%)	710 (43%)	1847 (44%)
<i>Median [Q1-Q3]</i>	6.92 [2.66-12.11]	6.82 [2.30-12.11]	18.05 [9.20-22.93]
Kilometers to Hospital			
<12	1928 (75%)	1227 (74%)	3155 (74%)
≥12	659 (25%)	426 (26%)	1085 (26%)
<i>Median [Q1-Q3]</i>	18.05 [9.20-22.93]	17.97 [9.20-22.93]	6.82 [2.66-12.11]

Table 2. Prevalence Ratios for Poor follow-up

	Univariable PR [95% CI]	P-value	Multivariable PR [95% CI]	P-value
Race				
<i>White</i>	Reference		Reference	
<i>Black</i>	1.20 [0.98-1.47]	0.0804	1.12 [0.93-1.36]	0.2382
<i>Asian</i>	0.83 [0.58-1.18]	0.2939	0.86 [0.61-1.22]	0.4005
<i>Other</i>	1.11 [0.91-1.35]	0.3192	1.05 [0.86-1.28]	0.6640
Ethnicity				
<i>Non-Hispanic</i>	Reference		Reference	
<i>Hispanic</i>	0.97 [0.90-1.05]	0.4285	1.04 [0.93-1.15]	0.5171
Kilometers to Hospital				
<12	Reference		Reference	
≥12	1.01 [0.93-1.10]	0.8282	0.98 [0.91-1.06]	0.6770
# Prenatal Visits				
0	2.70 [2.49-2.92]	<0.0001*	2.68 [2.46-2.92]	<0.0001*
1-5	1.77 [1.64-1.91]	<0.0001*	1.79 [1.65-1.94]	<0.0001*
6-12	Reference		Reference	
>12	0.63 [0.53-0.75]	<0.0001*	0.62 [0.52-0.74]	<0.0001*
Temporal Trend Covariates				
Maternal Age				
15-19	1.12 [0.99-1.27]	0.0742	1.13 [1.00-1.28]	0.0461*
20-24	Reference		Reference	
25-29	0.98 [0.89-1.109]	0.7576	0.97 [0.88-1.08]	0.6083
30-34	0.94 [0.84-1.05]	0.2791	0.93 [0.84-1.04]	0.2166
35-39	0.86 [0.74-0.99]	0.0466*	0.86 [0.75-0.99]	0.0478*
40+	0.87 [0.69-1.10]	0.2471	0.86 [0.68-1.09]	0.2199
Year of Delivery				
2012	Reference		Reference	
2013	0.88 [0.79-0.99]	0.0280*	0.88 [0.79-0.98]	0.0252*
2014	0.94 [0.85-1.05]	0.2702	0.95 [0.85-1.05]	0.3126
2015	1.12 [1.02-1.24]	0.0217*	1.14 [1.03-1.26]	0.0126*
Season of Delivery				
<i>Fall</i>	1.07 [0.967-1.19]	0.1878	1.07 [0.97-1.19]	0.1737
<i>Spring</i>	0.93 [0.83-1.04]	0.2021	0.92 [0.83-1.03]	0.1681
<i>Summer</i>	Reference		Reference	
<i>Winter</i>	1.05 [0.95-1.17]	0.3347	1.06 [0.95-1.17]	0.2973
Birth Related Covariates				
Parity				
0	0.87 [0.78-0.97]	0.0098*	0.87 [0.78-0.97]	0.0133*
1-2	Reference		Reference	
>2	1.20 [1.10-1.31]	<0.0001*	1.20 [1.09-1.31]	<0.0001*
Gestational Age (Weeks)				
<32	1.02 [0.79-1.31]	0.9027	1.02 [0.78-1.33]	0.9070
32-36	1.10 [0.97-1.24]	0.1322	1.08 [0.95-1.23]	0.2176
37-41	Reference		Reference	
42+	1.30 [0.49-3.46]	0.6039	1.19 [0.45-3.16]	0.7251
NICU				
<i>No</i>	Reference		Reference	
<i>Yes</i>	1.00 [0.90-1.10]	0.9398	0.99 [0.89-1.10]	0.8893
Mode of Delivery				
<i>CSVD</i>	Reference		Reference	
<i>Cesarean</i>	1.02 [0.94-1.10]	0.6887	1.00 [0.93-1.09]	0.9353

* p<0.05