



ORIGINAL ARTICLE

Comparison of Labour Pattern and Outcomes Among Multiparous and Grandmultiparous Women at a Tertiary Health Facility in Owerri, Imo State, Nigeria

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ABSTRACT

Background: Grandmultiparity remains prevalent in many low- and middle-income countries and has traditionally been associated with adverse maternal and perinatal outcomes. However, whether these adverse outcomes are attributable to parity itself or to confounding maternal characteristics remains controversial. Contemporary evidence from southeastern Nigeria is also limited.

Objective: To compare labour patterns and maternal and perinatal outcomes between grandmultiparous and frequency-matched multiparous women delivering at a tertiary health facility in southeastern Nigeria.

Methods: This retrospective comparative study included 458 women (229 grandmultiparous [parity ≥ 5] and 229 frequency-matched multiparous [parity 2–4]) who delivered between January 2016 and December 2018. Participants were matched for maternal age, gestational age, booking status, and socioeconomic class. Data were extracted from hospital records and analysed using SPSS version 20. Categorical variables were compared using Chi-square or Fisher's exact test, with $P < 0.05$ considered statistically significant.

Results: Grandmultiparous women had significantly higher rates of spontaneous labour (87.8% vs. 60.3%), caesarean delivery (23.6% vs. 11.4%), postpartum haemorrhage (17.5% vs. 7.9%), postpartum collapse (3.1% vs. 0.4%), and perinatal mortality (5.2% vs. 0%) (all $P < 0.05$). Multiparous women were more likely to require labour augmentation, induction or stimulation, prolonged second-stage labour, and instrumental vaginal delivery (all $P < 0.05$). No significant differences were observed in first-stage labour duration, retained placenta, intrapartum fever, birth weight, perinatal asphyxia, or neonatal admission.

Conclusion: Despite matching for major maternal characteristics, grandmultiparity remained associated with increased risks of caesarean delivery, postpartum haemorrhage, postpartum collapse, and perinatal mortality. Grandmultiparous women should continue to receive specialist antenatal care and delivery in facilities capable of providing comprehensive emergency obstetric and newborn care.

Keywords: Caesarean section; Grandmultiparity; Labour; Maternal outcome; Perinatal mortality; Postpartum haemorrhage.

INTRODUCTION

Grandmultiparity, commonly defined as childbirth in a woman who has delivered five or more infants at the age of fetal viability, remains an important obstetric concern worldwide despite substantial advances in maternal

healthcare. Although its prevalence has declined markedly in high-income countries because of increased contraceptive uptake, improved female education, delayed childbearing, and declining fertility rates, it remains relatively common in many low- and middle-

income countries, particularly in sub-Saharan Africa, where high fertility rates, early marriage, cultural preference for large families, and limited access to family planning services persist. Consequently, grandmultiparous women continue to constitute a substantial proportion of obstetric admissions in many tertiary hospitals across Nigeria, with reported prevalence ranging from approximately 5% to over 30% depending on the study setting and population.¹⁻¹²

Historically, grandmultiparity was regarded as a high-risk obstetric condition and was often described as the "dangerous multipara" because of its association with increased maternal and perinatal morbidity and mortality before the advent of modern obstetric care.⁷ Previous studies have linked grandmultiparity with postpartum haemorrhage, prolonged labour, malpresentation, uterine rupture, hypertensive disorders of pregnancy, operative delivery, anaemia, low Apgar scores, stillbirth, and increased maternal and perinatal mortality.^{3,5,6,8-10} These adverse outcomes have been attributed to progressive stretching of the uterine musculature, reduced myometrial contractility, advancing maternal age, and the cumulative physiological effects of repeated pregnancies.⁸⁻¹¹

However, the independent contribution of grandmultiparity to adverse pregnancy outcomes remains controversial. Improvements in antenatal care, skilled birth attendance, intrapartum monitoring, timely operative intervention, blood transfusion services, and neonatal care have substantially improved maternal and neonatal outcomes in many settings.^{7,8} Consequently, several contemporary studies have suggested that many complications previously attributed to grandmultiparity are more strongly related to advanced maternal age, inadequate antenatal care, low socioeconomic status, and pre-existing medical disorders than to parity itself.^{3,8-10} In contrast, studies from Nigeria and other resource-limited settings continue to report significantly higher maternal and perinatal morbidity among grandmultiparous women despite improvements in obstetric care.^{3-6,13-19} These conflicting findings suggest that the effect of grandmultiparity may vary according to population characteristics, healthcare infrastructure, and the extent to which confounding variables are controlled.

An important limitation of many previous studies is inadequate adjustment for confounding factors. Grandmultiparous women are generally older and often differ from women of lower parity with respect to socioeconomic status, antenatal care utilization, and baseline obstetric risk. Failure to account for these differences may overestimate the independent effect of parity on maternal and perinatal outcomes.^{3,22} Furthermore, many Nigerian studies were conducted more than a decade ago, before the widespread implementation of evidence-based labour management protocols, active management of the third stage of labour, improved blood transfusion services, and

advances in neonatal care.^{20,21} Consequently, contemporary evidence from southeastern Nigeria remains limited.

The Federal Medical Centre, Owerri (now Federal University Teaching Hospital, Owerri), is a major tertiary referral centre providing comprehensive emergency obstetric and neonatal care to women from Imo State and neighbouring states. Evaluating labour patterns and pregnancy outcomes among grandmultiparous women in this setting offers an opportunity to determine whether grandmultiparity remains associated with adverse maternal and perinatal outcomes under contemporary obstetric practice.

Therefore, this study compared labour patterns and maternal and perinatal outcomes between grandmultiparous women and frequency-matched multiparous women who delivered at the Federal Medical Centre, Owerri. By matching participants for maternal age, gestational age at delivery, booking status, and socioeconomic class, the study sought to minimise the influence of major confounding variables and provide contemporary evidence to guide risk stratification and obstetric care in Nigeria and similar resource-constrained settings.

MATERIALS AND METHODS

Study Design

This was a hospital-based retrospective comparative study conducted to compare labour patterns and maternal and perinatal outcomes between grandmultiparous and multiparous women who delivered at the Federal Medical Centre (now Federal University Teaching Hospital), Owerri, Imo State, Nigeria.

Study Setting

The study was conducted in the Department of Obstetrics and Gynaecology of the Federal Medical Centre, Owerri, a tertiary referral hospital serving Imo State and neighbouring states in southeastern Nigeria. During the study period (January 2016 to December 2018), the hospital functioned as a major referral centre providing comprehensive obstetric and neonatal services, including antenatal care, intrapartum management, emergency obstetric care, operative delivery, and postnatal care. Neonatal care services were provided in collaboration with the Special Care Baby Unit (SCBU) under the Department of Paediatrics.

Study Period

The study covered a 3-year period from 1 January 2016 to 31 December 2018.

Study Population

The study population comprised all women who delivered in the Department of Obstetrics and Gynaecology of the hospital during the study period.

During this period, there were 6,558 deliveries, consisting of:

- 2,315 grandmultiparous women (parity ≥ 5)
- 3,273 multiparous women (parity 2–4)

Eligibility Criteria

Inclusion Criteria

- Grandmultiparous women (parity ≥ 5) with singleton pregnancies
- Multiparous women (parity 2–4) with singleton pregnancies
- Women who delivered within the study period with complete clinical records

Exclusion Criteria

- Multiple gestation pregnancies
- Previous uterine scar (e.g., previous caesarean section or myomectomy)
- Chronic medical disorders complicating pregnancy (e.g., diabetes mellitus, chronic hypertension, renal disease)
- Incomplete or missing case records

Sample Size Determination

The minimum sample size was calculated using the formula for comparison of two independent proportions:

$$n = \frac{(Z_{\alpha/2} + Z_{\beta})^2 (p_1(1-p_1) + p_2(1-p_2))}{(p_1 - p_2)^2}$$

Where:

- $Z_{\alpha/2} = 1.96$ (95% confidence level)
- $Z_{\beta} = 0.84$ (80% power)
- P_1 = proportion of caesarean section among grandmultiparous women
- P_1 = proportion among multiparous women

Using values from a comparable Nigerian study, the minimum sample size was calculated as 173 participants per group. To account for incomplete records and ensure adequate statistical power, the sample size was increased by approximately 30%, giving a minimum of 225 per group. Ultimately, 229 participants per group were included.

Sampling Technique

A systematic random sampling technique was used.

A sampling frame of all eligible grandmultiparous women was obtained from the labour ward register. Every 10th case was selected after a randomly chosen starting point determined by balloting. The same procedure was applied to select multiparous women from the delivery register.

A 1:1 frequency-matched comparison design was used to ensure comparability between groups. Matching variables included:

- Maternal age (± 2 years)
- Gestational age at delivery (± 1 week)
- Booking status (booked/unbooked)
- Socioeconomic class (Oyedemi classification)²²

Individual pair matching was not performed.

Data Collection

Data were extracted using a structured, pre-designed data extraction form. Information was retrieved from:

- Labour ward registers
- Delivery registers
- Theatre records
- Antenatal case notes
- Neonatal records

Variables collected included:

- Sociodemographic characteristics
- Obstetric history
- Labour characteristics
- Mode of delivery
- Maternal outcomes
- Perinatal outcomes

Study Variables

Independent Variable

- Parity status (grandmultiparous vs multiparous)

Dependent Variables

- Labour pattern (onset, duration, augmentation, mode of delivery)
- Maternal outcomes (postpartum haemorrhage, retained placenta, postpartum collapse, etc.)
- Perinatal outcomes (birth weight, asphyxia, SCBU admission, perinatal mortality)

Data Management and Analysis

Data were entered into and analysed using the Statistical Package for Social Sciences (SPSS) version 20.0 (IBM Corp., Armonk, NY, USA).

Statistical Analysis

- Categorical variables were summarized using frequencies and percentages
- Continuous variables were summarized using means and standard deviations
- Comparisons between groups were performed using:
 - Pearson's Chi-square test
 - Fisher's exact test (where appropriate)
 - Independent t-test for continuous variables

A P-value <0.05 was considered statistically significant.

Handling of Missing Data

Incomplete observations were excluded from analyses of the affected variables using a complete-case analysis approach. The number of available observations was reported where applicable.

Ethical Considerations

Ethical approval for the study was obtained from the Health Research Ethics Committee of the Federal Medical Centre, Owerri (Approval No: FTH/OW/HREC/VOL.1/300).

As this was a retrospective review of hospital records, the requirement for individual informed consent was waived. Confidentiality was strictly maintained by anonymizing all patient identifiers during data extraction and analysis. Data were used solely for research purposes.

RESULTS

A total of 458 women were included in the study, comprising 229 grandmultiparous women and 229 frequency-matched multiparous women. During the study period, 6,558 deliveries were recorded, of which 2,315 (35.3%) occurred among grandmultiparous women and 3,273 (49.9%) among multiparous women.

Sociodemographic Characteristics

The sociodemographic characteristics of the study participants are presented in Table 1. Frequency matching achieved comparable distributions of maternal age, booking status, and socioeconomic class between the two study groups. There were no statistically significant differences in maternal age

distribution ($\chi^2 = 0.37$, $P = 0.985$), mean maternal age (33.8 ± 4.6 years vs. 33.9 ± 4.5 years; $t = 0.24$, $P = 0.814$), booking status ($\chi^2 = 0.06$, $P = 0.809$), or socioeconomic class based on the Oyediji classification ($\chi^2 = 0.08$, $P = 0.994$). These findings indicate that the matching strategy successfully minimized baseline differences between the groups.

Obstetric Characteristics

As shown in Table 2, the mean gestational age at delivery was similar among grandmultiparous and multiparous women (38.9 ± 1.5 weeks versus 39.0 ± 1.4 weeks; $t = 0.74$, $P = 0.461$). Likewise, the proportion of women who delivered at term did not differ significantly between the groups (92.1% vs. 93.0%; $\chi^2 = 0.13$, $P = 0.721$), confirming successful matching for gestational age.

Labour Patterns

Labour characteristics are summarized in Table 3. Grandmultiparous women were significantly more likely to present in spontaneous labour than multiparous women (87.8% vs. 60.3%; $\chi^2 = 45.06$, $P < 0.001$). Conversely, induction or stimulation of labour occurred more frequently among multiparous women (39.7% vs. 12.2%).

Labour augmentation was also required significantly more often in multiparous women than in grandmultiparous women (48.7% vs. 13.1%; $\chi^2 = 66.34$, $P < 0.001$).

There was no statistically significant difference in the duration of the first stage of labour between the two groups ($\chi^2 = 1.40$, $P = 0.236$). However, prolonged second-stage labour occurred significantly more frequently among multiparous women (13.2% vs. 4.7%; $\chi^2 = 8.79$, $P = 0.003$).

Mode of delivery differed significantly between the groups ($\chi^2 = 28.34$, $P < 0.001$). Although spontaneous vaginal delivery remained the commonest mode of delivery in both groups, grandmultiparous women had a significantly higher caesarean section rate (23.6% vs. 11.4%), whereas instrumental vaginal delivery was more common among multiparous women (20.1% vs. 5.7%).

Maternal Outcomes

Maternal outcomes are presented in Table 4. Grandmultiparous women experienced significantly higher rates of postpartum haemorrhage than multiparous women (17.5% vs. 7.9%; $\chi^2 = 7.88$, $P = 0.005$). Similarly, postpartum collapse occurred more frequently among grandmultiparous women (3.1% vs. 0.4%; $\chi^2 = 4.58$, $P = 0.032$).

Although intrapartum fever (14.8% vs. 10.0%; $P = 0.119$) and retained placenta (6.1% vs. 3.1%; $P = 0.117$) were observed more frequently among grandmultiparous women, these differences were not statistically significant.

Perinatal Outcomes

Perinatal outcomes are summarized in Table 5. There were no statistically significant differences between grandmultiparous and multiparous women in the occurrence of perinatal asphyxia (10.3% vs. 7.4%; $\chi^2 = 1.17$, $P = 0.279$), birth-weight distribution ($\chi^2 = 2.29$, $P = 0.318$), or admission to the Special Care Baby Unit (8.7% vs. 10.5%; $\chi^2 = 0.40$, $P = 0.527$).

Perinatal mortality, however, occurred exclusively among grandmultiparous women, with 12 deaths (5.2%) compared with no deaths among multiparous women. This difference was statistically significant (Fisher's exact test, $P = 0.001$).

DISCUSSION

Principal Findings

This frequency-matched retrospective comparative study demonstrated that, despite comparable baseline maternal characteristics, grandmultiparity remained associated with increased maternal morbidity and perinatal mortality. Grandmultiparous women were more likely to experience spontaneous onset of labour, caesarean delivery, postpartum haemorrhage, postpartum collapse, and perinatal mortality than multiparous women. In contrast, labour augmentation, induction or stimulation of labour, prolonged second-stage labour, and instrumental vaginal delivery were more common among multiparous women. No significant differences were observed in first-stage labour duration, intrapartum fever, retained placenta, birth-weight distribution, perinatal asphyxia, or Special Care Baby Unit admission.

A major strength of this study was the use of frequency matching for maternal age, gestational age at delivery, booking status, and socioeconomic class. By minimizing important baseline differences between the study groups, the findings more accurately reflect the independent association between parity and pregnancy outcomes than many previous Nigerian studies that compared unmatched populations.

Labour Patterns

Grandmultiparous women were significantly more likely to present in spontaneous labour and less likely to require labour induction or augmentation. These findings are biologically plausible because repeated pregnancies are associated with enhanced cervical compliance, increased uterine sensitivity to endogenous

oxytocin and prostaglandins, and greater efficiency of uterine contractions. Similar findings have been reported by Adeniran et al., Mgaya et al., and Alsammani and Ahmed, who observed higher rates of spontaneous labour among women with high parity.^{3,4,10}

Despite these favourable labour characteristics, grandmultiparous women had a significantly higher caesarean section rate. This suggests that operative delivery in this population is driven less by dysfunctional labour than by pregnancy-related complications requiring expedited delivery, such as placenta praevia, antepartum haemorrhage, fetal compromise, or malpresentation. Comparable findings have been reported in studies from Nigeria, Sudan, and South Africa.^{13,15,16,18,19}

Interestingly, prolonged second-stage labour and instrumental vaginal delivery occurred more frequently among multiparous women. This probably reflects the greater need for obstetric intervention in this group, whereas clinicians may have had a lower threshold for performing caesarean section in grandmultiparous women because of their perceived obstetric risk. Differences in institutional protocols and operator experience with instrumental vaginal delivery may also have contributed to these findings.

Overall, these results suggest that while grandmultiparity facilitates physiological labour progression, it does not eliminate the increased risk of complications requiring operative intervention.

Maternal Outcomes

Postpartum haemorrhage remained the most important maternal complication associated with grandmultiparity in this study. Even after controlling for major confounding variables through frequency matching, grandmultiparous women were more than twice as likely to experience postpartum haemorrhage as multiparous women. This finding supports the hypothesis that repeated pregnancies may impair uterine contractility through progressive stretching of the myometrium, thereby increasing the likelihood of uterine atony following delivery.

Our findings are consistent with reports from Nigeria and other low-resource settings, where postpartum haemorrhage remains one of the leading causes of maternal morbidity among grandmultiparous women.^{3,4,10,18,19} In contrast, studies from high-income countries have reported a weaker association after adjustment for maternal age and coexisting medical conditions.^{8,9} These differences probably reflect variations in obstetric practice, access to comprehensive emergency obstetric care, availability of blood transfusion services, and implementation of active management of the third stage of labour.

Postpartum collapse was also significantly more common among grandmultiparous women, although the

number of events was small. Given the concomitant increase in postpartum haemorrhage, haemorrhagic shock is the most likely explanation for this finding. However, because postpartum collapse has multiple potential causes, this result should be interpreted cautiously.

In contrast, intrapartum fever and retained placenta did not differ significantly between the groups. These findings suggest that improvements in intrapartum care, infection prevention, and active management of the third stage of labour may have reduced the influence of parity on these outcomes.

Perinatal Outcomes

The most important neonatal finding was the significantly higher perinatal mortality among grandmultiparous women. Because the study groups were matched for major maternal characteristics, the observed difference is less likely to be explained by maternal age, gestational age, booking status, or socioeconomic status. Instead, it probably reflects the greater burden of pregnancy and labour complications associated with grandmultiparity.

This finding agrees with previous reports from Nigeria and other low- and middle-income countries demonstrating increased perinatal mortality among grandmultiparous women despite improvements in obstetric care.^{3,4,10,18,19} Conversely, studies conducted in high-income settings have shown that the association between grandmultiparity and adverse neonatal outcomes is substantially reduced after adjustment for confounding variables and provision of high-quality maternity care.^{8,9} Differences in referral patterns, case mix, fetal surveillance, neonatal resuscitation, and access to specialist neonatal care may account for these contrasting findings.

No significant differences were observed in perinatal asphyxia, birth-weight distribution, or Special Care Baby Unit admission. These findings suggest that among neonates who survive delivery, short-term neonatal morbidity is broadly comparable between grandmultiparous and multiparous women receiving care in a tertiary hospital. Improvements in intrapartum fetal monitoring and neonatal care may have contributed to these favourable outcomes.

Clinical Implications

The findings of this study have important implications for obstetric practice in resource-limited settings. Although modern obstetric care has reduced many of the complications traditionally associated with grandmultiparity, women with high parity remain at increased risk of postpartum haemorrhage, caesarean delivery, postpartum collapse, and perinatal mortality. Grandmultiparous women should therefore continue to receive specialist antenatal care, vigilant intrapartum

monitoring, routine postpartum haemorrhage prevention strategies, and delivery in facilities capable of providing comprehensive emergency obstetric and newborn care.

Strengths and Limitations

A major strength of this study is the use of frequency matching to minimize confounding by maternal age, gestational age at delivery, booking status, and socioeconomic class. This approach enhances the validity of the comparison and provides contemporary evidence regarding the independent effect of grandmultiparity on labour and pregnancy outcomes.

The study also has limitations. Its retrospective design depended on the completeness and accuracy of hospital records, making information bias possible. The study was conducted in a single tertiary referral centre, which may limit the generalizability of the findings to primary or secondary healthcare settings. Furthermore, residual confounding from variables not included in the matching process or unavailable in the medical records cannot be completely excluded.

CONCLUSION

This study demonstrated that, despite frequency matching for maternal age, gestational age at delivery, booking status, and socioeconomic class, grandmultiparity remained associated with significantly higher rates of spontaneous labour, caesarean delivery, postpartum haemorrhage, postpartum collapse, and perinatal mortality compared with multiparity. In contrast, labour duration, intrapartum fever, retained placenta, perinatal asphyxia, birth-weight distribution, and Special Care Baby Unit admission were comparable between the groups.

These findings indicate that, although advances in obstetric care have reduced many of the traditional risks associated with grandmultiparity, high parity remains an independent predictor of selected adverse maternal and perinatal outcomes. Grandmultiparous women should therefore continue to be managed as a high-risk obstetric population, with specialist antenatal care, vigilant intrapartum surveillance, active prevention and prompt treatment of postpartum haemorrhage, and delivery in facilities capable of providing comprehensive emergency obstetric and newborn care.

Further prospective multicentre studies are recommended to confirm these findings, evaluate additional determinants of adverse pregnancy outcomes among grandmultiparous women, and inform evidence-based strategies for reducing maternal and perinatal morbidity and mortality in resource-limited settings.

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Table 1. Sociodemographic Characteristics of the Study Participants

Variable	Grandmultiparous women (N=229)	Multiparous women (N=229)	χ^2/t	p-value
Age group (years)			0.37	0.985
<25	5(2.2)	4(1.7)		
25–29	38(16.6)	41(17.9)		
30–34	92(40.2)	90(39.3)		
35–39	74(32.3)	72(31.4)		
≥40	20(8.7)	22(9.6)		
Mean maternal age (years)	33.8±4.6	33.9±4.5	0.24	0.814
Booking status			0.06	0.809
Booked	188(82.1)	186(81.2)		
Unbooked	41(17.9)	43(18.8)		
Socioeconomic class (Oyedepi)			0.08	0.994
Class I	30(13.1)	29(12.7)		
Class II	82(35.8)	84(36.7)		
Class III	75(32.8)	73(31.9)		
Class IV	42(18.3)	43(18.8)		

Values are presented as frequency (%) unless otherwise stated. Continuous variables are presented as mean ± standard deviation (SD). Pearson's Chi-square test was used for categorical variables, while the independent samples t-test was used for continuous variables.

Table 2. Comparison of Obstetric Characteristics of the Study Participants

Variable	Grandmultiparous women (N=229)	Multiparous women (N=229)	χ^2/t	p-value
Mean gestational age at delivery (weeks)	38.9±1.5	39.0±1.4	0.74	0.461
Gestational age at delivery			0.13	0.721
<37 weeks	18(7.9)	16(7.0)		
≥37 weeks	211(92.1)	213(93.0)		

Continuous variables are presented as mean ± SD. Categorical variables are presented as frequency (%).

Table 3. Comparison of Labour Patterns between Grandmultiparous and Multiparous Women

Parameter	Grandmultiparous women (N=229)	Multiparous women (N=229)	χ^2	p-value
Onset of labour			45.06	<0.001
Spontaneous	201(87.8)	138(60.3)		
Induction/Stimulation of labour	28(12.2)	91(39.7)		
Augmentation of labour			66.34	<0.001
Available cases (n)	222	226		
No	193(86.9)	116(51.3)		
Yes	29(13.1)	110(48.7)		
Duration of first stage of labour			1.40	0.236
Available cases (n)	222	229		
≤12 hours	217(97.7)	227(99.1)		
>12 hours	5(2.3)	2(0.9)		
Duration of second stage of labour			8.79	0.003
Available cases (n)	192	186		
≤1 hour	183(95.3)	184(86.8)		
>1 hour	9(4.7)	28(13.2)		
Mode of delivery			28.34	<0.001
Spontaneous vaginal delivery	162(70.7)	157(68.6)		
Instrumental vaginal delivery	13(5.7)	46(20.1)		
Caesarean section	54(23.6)	26(11.4)		

Percentages were calculated using the available (non-missing) observations for each variable. Missing observations were excluded from the respective analyses.

Table 4. Comparison of Maternal Outcomes between Grandmultiparous and Multiparous Women

Outcome	Grandmultiparous women (N=229)	Multiparous women (N=229)	χ^2	p-value
Postpartum haemorrhage			7.88	0.005
No	189(82.5)	211(92.1)		
Yes	40(17.5)	18(7.9)		
Intrapartum fever			2.43	0.119
No	195(85.2)	206(90.0)		
Yes	34(14.8)	23(10.0)		
Retained placenta			2.45	0.117
No	215(93.9)	222(96.9)		
Yes	14(6.1)	7(3.1)		
Postpartum collapse			4.58	0.032
No	222(96.9)	228(99.6)		
Yes	7(3.1)	1(0.4)		

Values are presented as frequency (%). Pearson's Chi-square test was used for all comparisons.

Table 5. Comparison of Perinatal Outcomes between Grandmultiparous and Multiparous Women

Outcome	Grandmultiparous women (N=229)	Multiparous women (N=229)	χ^2	p-value
Perinatal asphyxia			1.17	0.279
No	200(89.7)	212(92.6)		
Yes	23(10.3)	17(7.4)		
Birth weight			2.29	0.318
Low birth weight	64(27.9)	79(34.5)		
Normal birth weight	156(68.1)	142(62.0)		
Macrosomia	9(3.9)	8(3.5)		
Perinatal mortality			—	0.001†
No	217(94.8)	229(100.0)		
Yes	12(5.2)	0(0.0)		
SCBU admission			0.40	0.527
No	209(91.3)	205(89.5)		
Yes	20(8.7)	24(10.5)		

Values are presented as frequency (%). † Fisher's exact test was used because one cell had an expected frequency of zero. SCBU = Special Care Baby Unit.