

Original Article

MATERNAL AND NEONATAL OUTCOMES IN GRAND MULTIPAROUS WOMEN DELIVERED AT A TERTIARY HOSPITAL IN NIGER-DELTA, NIGERIA.

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Abstract

Background: Total fertility rate in Nigeria is high at 5.3 children per woman, meaning that many women will become grand multiparous at some point during their reproductive career. Grand multiparity is associated with high risk pregnancies and increases the risk of pregnancy associated complications.

Objective: To describe the maternal and neonatal complications and the determinants in grand multiparous women in a tertiary hospital in Niger-Delta, Nigeria.

Materials and Methods: A retrospective descriptive study. Data on grand multiparous women who delivered at the Federal Medical Centre, Yenagoa was collected between 1st of January, 2014 and 31st of December, 2018 using a Proforma. The data was analysed using the Statistical Package for Social Sciences version 20.0.

Results: There were 654 deliveries by grand multiparous women out of 6,435 total deliveries during the period, giving an incidence of 10.2%. Most of the women (37.8%) were aged between 31 and 35 years and had a secondary level of education (42.4%). About 65.3% were booked for antenatal care. Antenatal, labour and foetal/neonatal complications occurred in 31.8%, 29.1%, and 57.2% of the women respectively. Foetal malpresentation was the commonest (31.6%) maternal antenatal complication while the most common maternal labour complication was caesarean delivery (89.5%). There were considerably higher maternal labour complications among unbooked than booked women (65.8% and 34.2% respectively). Unbooked women also had more foetal complications than the booked women (63.3% and 36.6% respectively). Birth asphyxia and perinatal death were more common among the unbooked women.

Conclusion: Poor embrace of tertiary education may have contributed to the number of younger aged grand multiparous women. Grand multiparity is a harbinger of maternal, foetal and neonatal complications and an unbooked status worsens pregnancy outcome in them.

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INTRODUCTION

A grand multipara is a pregnant mother who has had five or more births.¹ The International Federation of Gynaecology and Obstetrics defines grand multiparity as delivery of the fifth or more newborn.² Grand multiparity has been considered a high risk pregnancy for several decades and is associated with complications.^{1,3} It is associated with both maternal and perinatal morbidity and mortality.^{3,4} Obstetric and foetal complications can be prevented or reduced through optimal obstetric care, education and the

limitation of parity by utilization of family planning services.^{5,6}

The incidence of grand multiparity is as low as 3% to 4% in high income countries due to the advancements in family planning and obstetric care and high parity is no longer associated with adverse maternal and perinatal outcome in such settings.⁶ Conversely, grand multiparity is common in low- and middle-income countries where figures as high as 19.3% has been recorded,⁶ contributing to one-third of maternal deaths.¹ This disparity can be attributed to social deprivation and low socioeconomic status of women,

poor female literacy, early marriages, desire for large families and male children, decreased survival of most delivered children, inadequate access to specialized health care, poor availability and utilization of contraception and underperformance of family planning initiatives.^{6,7} In the African setting for instance, a woman would have many children for various socio-cultural reasons, thinks marriage is for childbearing purposes and seeks to stabilize her marriage by having many children especially male children.⁵

The complications of grand multiparity include anaemia, hypertensive disorders, diabetes mellitus, placenta praevia, placental abruption, foetal malpresentation and malposition, precipitate labour, uterine rupture, instrumental vaginal delivery, increased caesarean section rate, postpartum haemorrhage, foetal macrosomia, still birth, low Apgar score and low birth weight etc.^{1,7,8} The total fertility rate in Nigeria is high at 5.3 children per woman⁹ thus many Nigerian women will become grand multiparous at a point during their reproductive career and become faced with the risk of complications including maternal and newborn death associated with grand multiparity in a developing country.

This study aims to describe the maternal and neonatal complications and the determinants in grand multiparous women in a tertiary hospital in Niger-Delta, Nigeria. Local data will highlight determinants peculiar to women in the study population and serve as a basis for further study.

MATERIALS AND METHODS

Study setting

The study was conducted at the Federal Medical Centre, Yenagoa, located in Yenagoa the capital of Bayelsa state of Nigeria. The hospital serves as a referral centre for private, cottage, and general hospitals in Bayelsa state and its environs.

Study design

A retrospective descriptive study of grand multiparous women who delivered at the Federal Medical Centre, Yenagoa between 1st of January, 2014 and 31st of December, 2018.

Study population

All grand multiparous women who delivered at the Federal Medical Centre, Yenagoa between 1st of

January, 2014 and 31st of December, 2018 were included in the study.

Data collection

From the labour ward delivery register, the folder numbers of 654 grand multiparous women who delivered at the Federal Medical Centre, Yenagoa between 1st January 2014 and 31st December 2018 were obtained. With the folder numbers, their folders were retrieved from the records department of the hospital and the following information was extracted from each folder into a Proforma: age, educational status, parity, booking status, maternal (antenatal and labour complications), neonatal complications and mode of delivery.

Data analysis

Data was entered into Microsoft excel spread sheet and analysed using the Statistical Package for Social Sciences version 20.0. The results are presented in frequencies, percentages and tables.

RESULTS

Of the 6,435 deliveries during the period, 654 women were grand multiparous. **Table 1** shows the distribution of the socio-demographic characteristics of the women. Most were between the age range of 31 and 35 years (37.8%), followed by 36 and 40 years (32%), less common were women aged below 25 years (2.3%) and the least common were women greater than 45 years (0.3%). Majority of the women (83.6%) had at least a primary education. Most are educated up to secondary level (42.2%) while only 7.6% had a secondary education. Most of them were para 5 (46.5%) and parity greater than 10 (1.4%) was the least seen. About 65.3% were booked for antenatal care while 34.7% were unbooked.

Antenatal, labour and foetal/neonatal complications occurred in 31.8%, 29.1%, and 57.2% of the women respectively. Foetal malpresentation was the commonest maternal antenatal complication (31.6%) followed by preterm labour (27.3%), hypertensive disease in pregnancy (14.8%) and the least were abruptio placentae (0.5%), polyhydramnios (0.5%) and diabetes mellitus (0.5%) as in **Table 2**. The most common maternal labour complication was caesarean delivery (89.5%) followed by postpartum haemorrhage which constituted 4.7%. There was no maternal death recorded (**Table 2**). From **Table 3**, the most common foetal/neonatal complication was foetal

macrosomia (23.3%) followed by low birth weight (19.8%) then birth asphyxia (19.5%) and the least was risk of sepsis (7.5%).

Foetal malpresentation was the most common antenatal complication in both booked and unbooked women at 17.2% and 14.4% respectively then followed by preterm labour and hypertensive disease in pregnancy in both groups (Table 4).

Unbooked women had more complications in labour than booked women; 65.8% and 34.2% respectively and the incidence of caesarean section was higher among unbooked than booked women at 56.3% and 33.2% respectively. Most of the caesarean sections were emergency caesarean sections (71.2%) and they were largely contributed by the unbooked women (76.9%) as shown in Tables 5 and 6 respectively. The most common indications for caesarean section were still foetal malpresentation and hypertensive disease in pregnancy (both 24.1%) as in Table 7. The incidence

of postpartum haemorrhage among the unbooked women (3.7%) was more than twice that among the women that were booked (1.1%), and other complications like intrapartum diagnosed placenta praevia, uterine rupture and vacuum delivery occurred only in unbooked women as shown in Table 4.

From Table 8, unbooked women had more foetal/neonatal complications than booked women; 63.3% and 36.6% respectively. The most common foetal complication among them was birth asphyxia (16.8%), then still birth and foetal macrosomia. Most of the perinatal deaths that occurred during the study period were in unbooked women (13.4%).

Table 9 shows the modes of delivery. Most of the grand multiparous women had spontaneous vaginal delivery (73.4%), while 26.2% and 0.5% had caesarean section and instrumental vaginal delivery respectively.

Table 1: Socio-Demographic Characteristics

Variables	Frequency	Relative frequency (%)
Age (Years)		
<25	15	2.3
26-30	144	22
31-35	247	37.8
36-40	209	32.0
41-45	37	5.7
>45	2	0.3
Total	654	100
Educational status		
Primary	220	33.6
Secondary	277	42.4
Tertiary	50	7.6
No formal education	107	16.4
Total	654	100
Parity		
P5	304	36.5
P6	170	26
P7	82	12.5
P8	44	6.7
P9	31	4.7
P10	14	2.1
P>10	9	1.4
Total	654	100

Booking Status		
Booked	427	65.3
Unbooked	227	34.7
Total	654	100

Table 2: Maternal Outcomes

Variables	Frequency	Relative frequency (%)
Antepartum		
Hypertensive disease	31	14.9
Diabetes mellitus	1	0.5
Twin pregnancy	19	9.1
Abruptio placenta	1	0.5
Placenta praevia	3	1.4
Foetal malpresentation	66	31.7
Prelabour rupture of membrane	17	8.2
Preterm labour	57	27.4
Miscarriage	7	3.4
Polyhydramnios	1	0.5
Prolonged pregnancy	5	2.4
Total	208	100
Labour		
Uterine rupture	4	2.1
Intrapartum haemorrhage (placenta abruptio)	0	0
Intrapartum haemorrhage (placenta praevia)	4	2.1
Postpartum haemorrhage	9	4.7
Caesarean section	170	89.5
Vacuum delivery	3	1.6
Maternal deaths	0	0
Total	190	100

Table 3: Foetal/Neonatal Outcomes

Variables	Frequency	Relative frequency (%)
Birth asphyxia	73	19.5
Still births	55	14.7
Low birth weight	74	19.8
Foetal macrosomia	87	23.3
Prematurity	57	15.2
Risk of sepsis	28	7.5
Total	374	100

Table 4: Booking Status and Maternal Outcome

Variables	Unbooked (%)	Booked (%)
Antepartum		
Hypertensive disease	13(6.3%)	18(8.7%)
Diabetes mellitus	0	1(0.5%)
Twin pregnancy	10(4.8%)	9(4.3%)
Abruptio placenta	1(0.5%)	0
Placenta praevia	1(0.5%)	2(1%)
Foetal malpresentation	30(14.4%)	36(17.3%)
Premature rupture of foetal membrane	12(5.8%)	5(2.4%)
Preterm labour		
Miscarriage	25(12%)	32(15.4%)
Polyhydramnios	3(1.4%)	4(1.9%)
Prolonged pregnancy	0	1(0.5%)
	5(2.4%)	0
Total	100(48.1%)	108(51.6%)
Labour		
Uterine rupture	4(2.1%)	0
Intrapartum haemorrhage (placental abruption)	0	0
Intrapartum haemorrhage (placenta praevia)	4(2.1%)	0
Postpartum haemorrhage	7(3.7%)	2(1.1%)
Caesarean section	107(56.3%)	63(33.2%)
Vacuum delivery	3(1.6%)	0
Maternal deaths	0	0
Total	125(65.8%)	65(34.2%)

Table 5: Type of Caesarean Section

Variables	Frequency	Relative frequency (%)
Elective	49	28.8
Emergency	121	71.2
Total	170	100

Table 6: Booking Status and Type of Caesarean Section

Variables	Emergency caesarean section	Elective caesarean section
Unbooked	93 (76.9%)	14 (28.6%)
Booked	28 (23.1%)	35 (71.4%)
Total	121	49

Table 7: Indications for Caesarean Section

Variables	Frequency	Relative frequency (%)
Obstructed labour	18	10.6
Cephalopelvic disproportion	28	16.5
Foetal malpresentation	41	24.1
Foetal distress	13	7.6
Hypertensive disease	41	24.1
PMTCT of HIV	2	1.2
Two previous caesarean sections	16	9.4
Major degree placenta praevia	8	4.7
Congenital anomaly	2	1.2
Abruptio placenta	1	0.6
Total	170	100

Table 8: Booking Status and Foetal/Neonatal Outcome

Variables	Booked (%)	Unbooked (%)
Birth asphyxia	10(2.7%)	63(16.8%)
Still births	5(1.3%)	50(13.4%)
Low birth weight	37(9.9%)	37(9.9%)
Foetal macrosomia	47(12.6%)	40(10.7%)
Prematurity	31(8.2%)	26(6.9%)
Risk of sepsis	7(1.9%)	21(5.6%)
Total	137(36.6%)	237(63.3%)

Table 9: Mode of Delivery

Variables	Frequency	Relative frequency (%)
Spontaneous vaginal delivery	477	73.4
Vacuum delivery	3	0.5
Caesarean section	170	26.2
Total	650	100

DISCUSSION

From this study, 654 women out of the 6,435 who delivered at the study centre during the study period were grand multiparous, which puts the incidence of grand multiparity at 10.2%. This is comparable to a

study carried out by Duria et al in Sudan which had an incidence rate of 10.4%⁸ and also comparable to the reported incidence of 10.2% from another study in Kano, Nigeria.⁷ It is however much lower than the 18.1% reported in a study conducted by Ogbe et al in

Jos, Nigeria¹⁰; perhaps due to the early marriages and early commencement of child bearing peculiar with the Northern part of Nigeria. Postponing first births and extending the interval between births have played a role in reducing fertility levels in many countries.⁹

The incidence of grand multiparity in this study is a lot higher than the 1.92% reported in a study done in Port Harcourt; another city in the Niger-Delta region of Nigeria by Azubuike et al.¹¹ This marked difference is attributable to the difference observable in the level of education of women from both studies. Whereas over 50% of women in the Port Harcourt study had a secondary education and 22.8% had a tertiary education, in this study 42.4% had a secondary education and just 7.6% had a tertiary education. And whereas just 1% of women in the Port Harcourt study had no formal education, 16.4% of women in this study had no formal education. In addition, Port Harcourt city had long become an urban city, while Yenagoa; the capital of the relatively recently created Bayelsa state is still semi-urban. Age-specific fertility rates are lower in urban areas than in rural areas among women in all age groups.⁹

Most of the grand multiparous women were in the age range of 31 and 35 years and lower than that reported in Port Harcourt.¹¹ This relatively younger age of very high parity mothers may be due to poor embrace of tertiary education as earlier noted.

A higher number of the grand multiparae (65.3%) were booked for antenatal care from findings in this study. The level of uptake of antenatal care among the grand multiparous women from this study is in keeping with the national antenatal care coverage rate of 67%.⁹ However, the 34.7% with an unbooked status is remarkable and in keeping with the finding by Duria et al, which was 36.9%.⁸ Despite the known benefits of antenatal care, it has been reported that women with parity of ≥ 4 were about 20 times less likely to receive antenatal care than primiparous women.¹²

Foetal malpresentation was the most common antenatal complication among grand multiparous women from this study (31.6%). This can be attributed to their lax uterus and abdominal wall from increasing parity and age. The high incidence of preterm labour (27.3%) and hypertensive disease in pregnancy (14.8%) can also be related to increasing maternal age; as age increases with increasing parity

and risk of medical complication increases with age. Hypertension was also recorded as a maternal antenatal complication among grand multiparous women in other studies.^{11,13} Although a vast majority of the women had spontaneous vaginal delivery, among women who had labour complication caesarean section was the most common complication recorded. This is expectedly so as caesarean section is often times, a preferred mode of delivery to prevent maternal and perinatal morbidity and mortality when complications arise in pregnancy. The rate of labour complication reported in this study (29.1%) is close to the 32.8% reported by Azubuike et al.¹¹

Although there was no notable difference in the incidence of antenatal complications between the booked and unbooked women, there was a remarkably higher incidence of labour complications among the unbooked. Complications like uterine rupture, intrapartum diagnosed placenta praevia, obstructed labour and vacuum delivery occurred only among the unbooked women. The unbooked women had a higher incidence of caesarean section; largely emergency caesarean sections, birth asphyxia, still birth and risk of sepsis in the newborn. The perinatal complications among grand multiparous women recorded in this study is in keeping with findings by Severinski et al.⁴ As in this study, in other studies obstructed labour was associated mainly with the unbooked women^{11,14,15} and caesarean section was commoner among the unbooked grand multiparae.¹⁵

The caesarean section rate from this study was 26.6% which is in keeping with the 28.6% documented in a previous study from the same centre¹⁶ and comparable with that which was reported by Ogedengbe et al.¹⁵ The common indications for caesarean section from this study are foetal malpresentation, hypertensive disease in pregnancy, cephalopelvic disproportion and obstructed labour; a trend similar to the findings of Azubuike et al.¹¹

CONCLUSION

From this study, level of education is a determinant of incidence of grand multiparity. Education to primary and secondary level did not reduce incidence of high parity, however tertiary education is likely to play a role in achieving a reduction. Grand multiparity is a harbinger of maternal, foetal and neonatal complications. Failure to receive antenatal care increases incidence of labour complications and

caesarean section in grand multiparous women and worsens foetal/neonatal outcome.

RECOMMENDATION

Incentivisation of antenatal care uptake and in-hospital delivery or delivery supervised by a skilled attendant is an intervention that is capable of improving pregnancy outcome in grand multiparous women and is thus encouraged. In addition to promoting and enabling tertiary education of women, effort should be made to enlighten the populace; especially women of reproductive age group, on grand multiparity and its dangers and the benefits of antenatal care for the grand multiparous woman through mass media and community sensitization programmes. Public education is also required to address and debunk the various myths associated with contraceptive use plus efforts to improve access to and utilization of family planning services especially by women of high parity.

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CONFLICT OF INTEREST

The authors declare that there are no conflicts of interest.

ETHICAL APPROVAL

Ethical approval was not required for this study.

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