

The Delivery of Grand Multiparas in a Semi-Rural Setting: A Cross-Sectional Descriptive Study at the Ayos Locality of Cameroon

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Abstract

Introduction: Grand multiparity is a known risk factor for maternal and fetal complications. **Materials and Methods:** We carried out a cross-sectional descriptive study on the delivery of grand multiparas at the maternity of the regional hospital annex of Ayos, a semi-rural locality in the Center region of Cameroon. The study covered the period from January 2012 through December 2020, and the objective was to assess the frequency, the determinants and the outcome of delivery in grand multiparas. **Results:** We recorded 1384 deliveries and enrolled 137 cases of delivery of grand multiparas. This gives a frequency of grand multipara delivery of 9.89%. The mean age of the women was 34.96 ± 4.45 years. Married parturients accounted for 65% of the cases and 16.8% were HIV positive. Delivery occurred at term in 89.9%. In 35.8%, no antenatal consultation was done. The use of the partograph during labor was reported in 11.7%. Per vaginal delivery was noted in 88.3%, emergency cesarean in 10.2% and elective cesarean in 1.5%. The most frequent maternal complications included post-partum hemorrhage (19.9%), genital tract tears (12.4%), endometritis (9.5%) and surgical wound infection (8.7%). No maternal death was recorded. The mean birth weight of the newborns was 3336.8 ± 550 g. Fetal complications were mostly represented by neonatal in-

fection (20.1%), perinatal death (7.9%) and neonatal asphyxia (9.5%). *Conclusion:* The frequency of grand multiparous delivery in the semi-rural locality of Ayos, Cameroon, was 9.89%. The mean age of parturients was 38.96 years and the proportion of vaginal delivery was 88.3%.

Keywords

Grand Multipara, Delivery, Semi Rural, Cameroon

1. Introduction

Most recent articles define grand multiparity as parity from five to nine [1] [2] [3]. The prevalence of grand multiparity is reportedly high in developing countries, with proportions of 5.1% to 33.6%, in comparison with developed countries where 3% to 4% of all births occurred in grand multiparous women [3] [4] [5] [6]. In developing countries like Cameroon, grand multiparity has been associated with unmet needs of family planning, limited access to antenatal care, low socio-economic status and unskilled birth attendance [2] [3]. These factors, in turn, may predispose to adverse maternal outcomes such as anemia, diabetes mellitus, hypertension, malpresentation, placental abruption, placenta previa, post-partum hemorrhage, cesarean section, uterine rupture and utero-vaginal prolapse [2] [3] [4]. Fetal complications include abortion, intra uterine fetal death, small for gestational age babies, prematurity, birth asphyxia and early neonatal demise [1] [2] [3] [4]. Even though controversies exist on the contribution of high parity to these complications, many studies associate grand multiparity with significantly increased risks of obstetric complications, neonatal morbidity and perinatal death [2] [3] [4].

We, therefore, aimed to assess the prevalence and outcomes of delivery in grand multiparas in the setting of a reference hospital in a semi-urban locality of Cameroon.

2. Materials and Methods

A cross-sectional descriptive study with retrospective data collection was carried out at the maternity of Ayos regional hospital annex, between January 2012 and December 2020. The Ayos regional hospital annex is the major referral health facility in this semi-rural locality. The medical staff included one obstetrician, five general practitioners, six nurses and two operating room nurses.

Operational definition:

Women who have given birth between the fifth to the ninth time were considered as grand multiparas. Parturient referred to women in labor.

Sampling:

Every delivery done at the health facility during the period of the study was reviewed.

The sample was made up of women who met the following criteria: parturients in the delivery room preparing for the fifth to the ninth delivery, or patients seen during the post-partum period following the fifth to ninth delivery. The exclusion criteria included: incomplete or missing files, refusal of patients.

The sample size was not estimated as we aimed to enroll all grand multiparas. We carried out a consecutive enrolment. The duration of the post-partum follow up was two days.

Variables of the study:

Data were recorded by using a self-constructed questionnaire. Information was obtained from medical records of patients and medical reports in the delivery and operating rooms. The variables of the study were:

- Socio-demographic characteristics of patients: age, marital status, occupation.
- Past medical history: parity, past pregnancies, HIV status.
- Delivery parameters: gestational age, use of partograph, mode of delivery.
- Maternal complications and outcomes.
- Fetal outcomes: weight, APGAR score, gender.

Analysis:

Data were entered at the end of the collection process in the Sphinx Millennium 4.5. for PC Computer. The statistical analysis was performed by validation of the data base and importing into Excel application. Categorical variables were reported as frequencies and percentages, while numerical variables were presented as means with their corresponding standard deviation (SD) and range.

Ethical considerations:

We obtained ethical clearance from the ethics committee of the regional hospital annex of Ayos. We used only anonymized data from the files, and obtained consent from all participants prior to their enrolment.

3. Results

We enrolled 1384 deliveries and recorded 137 cases of delivery in grand multiparas. This gave us a frequency of delivery of grand multipara delivery of 9.89%. The ages of grand multiparous parturients ranged from 21 to 46 years with a mean age of 34.96 ± 4.45 years. Socio-demographic characteristics of this population are presented in **Table 1**. The modal class was the [35 - 39[years class with 52 cases. Among these parturients, 65% were married, 70% had a primary level of education and 94.8% were unemployed.

3.1. Obstetrical Parameters

The delivery occurred at term in 89.8% of cases. The pregnancy was singleton in 98.5%. The partograph was used to monitor the labor in 11.7%. The HIV prevalence was 16.8%. Regarding the follow up of the pregnancy to delivery, 35.8% of patients had done no antenatal consultation. Caesarean delivery constituted 11.7% of all deliveries in grand multiparas (emergency cesarean in 10.2% and elective cesarean in 1.5%) (**Table 2**).

Table 1. Socio-demographic characteristics of grand multiparous parturients.

Variables	Occurrence (n = 137)	Proportion (%)	
Age of parturients	[20 - 24[1	0.7
	[25 - 29[14	10.2
	[30 - 34[48	35
	[35 - 39[52	38
	≥40	22	16.1
Marital status	Single	46	33.5
	Married	89	65
	Widow	2	1.5
Education	Primary	96	70
	High school	40	29
	University	1	1
Occupation	No	130	94.8
	Yes	7	5.2

Table 2. Obstetrical parameters.

Variables	Occurrence (n = 137)	Proportion (%)	
Gestational age (Weeks)	<37	11	8
	37 - 42	123	89.8
	<42	3	2.2
Type of gestation	Singleton	135	98.5
	Twin	2	1.5
Antenatal consultations	0	49	35.8
	1 - 2	30	21.8
	3 - 4	38	27.8
	>4	20	14.6
Partograph use	Yes	16	11.7
	No	121	88.3
Mode of delivery	Per vaginal	121	88.3
	Emergency cesarean	14	10.2
	Elective cesarean	2	1.5

3.2. Maternal and Fetal Complications

Maternal complications are dominated by post-partum hemorrhage (19.9%), genital tract tears (12.4%), endometritis (9.5%), surgical wound infection (8.7%)

and uterine rupture (3.6%). No case of uterine rupture and no delivery related maternal death were recorded during the study period at the health facility (Table 3).

The birthweight of the newborns ranged from 1500 g to 4950 g with a mean of 3336.8 ± 550 g. The mean APGAR score at 5 minute was 7.77 ± 2.7 (Table 4). A normal APGAR score between 7 to 10 was recorded for 114 newborns (82%). Major fetal complications included neonatal infection (20.1%), perinatal death (7.9%) and neonatal asphyxia (6.5%). The perinatal mortality ratio was 79.1 per 1000 live births.

Table 3. Maternal complications.

Complications	Occurrence (n = 137)	Proportion (%)
Post-partum hemorrhage	27	19.9
Genital tract tears	17	12.4
Endometritis	13	9.5
Wound infection	12	8.7
Uterine rupture	5	3.6
Eclampsia	2	1.5
Death	0	0

Table 4. Fetal parameters.

Variables	Occurrence (n = 139)	Proportion (%)
Birth weight (g)	<2000	0.7
	2000 - 2499	5
	2500 - 2999	12.9
	3000 - 3499	39.6
	3500 - 3999	31
	≥ 4000	10.8
Apgar score	0	7.9
	1 - 6	10.1
	7 - 10	82
Fetal complications	Neonatal infection	20.1
	Perinatal death	7.9
	Neonatal asphyxia	6.5
	Jaundice	3.5
	Prematurity	1.4

4. Discussion

Regarding the occurrence of grand multipara delivery, we observed a frequency of 9.89%. This is higher than the 5.3% reported by Alsammani in Saudi Arabia [7] but similar to the 9.44% reported by Muniro in Tanzania [3]. In a similar study conducted in rural areas in the North West region of Cameroon in 2019, Ajong observed a frequency of 27% [2], and Idoko *et al.* in The Gambia reported a frequency of 26.5% [8]. These figures tie with the expected higher proportion of delivery by grand multiparas in rural areas. In these settings, access to modern contraception is relatively poor. However, even though our health facility is a reference center in a semi-rural area, it is possible that many grand multiparas do not deliver at hospital, since it has been demonstrated that grand multipara tend to be overconfident and tend to seek appropriate prenatal care late [4].

The mean age of parturients was 34.96 years \pm 4.45 and most of the parturients (65%) were married. Ajong reported a similar mean age of 33.4 \pm 5 years but the proportion of married parturients was much higher (91.7%). Muniro in Tanzania reported a lower mean age of 30.4 years [3]. These could suggest a slightly lower proportion of marriage and a proportionately lower fecundity in our target population.

Concerning the demographic and obstetrical characteristics of the study population, we observed a low adherence to antenatal follow-up with up to 35.8% of parturients having had no antenatal contact during the indexed pregnancy. Patients who had more than 04 consultations represented only 14.6% of our study population. In the study by Muniro, in which 62.5% of the population resided in rural areas, less than half of the population (48%) had 04 antenatal contacts or more during the indexed pregnancy [3]. We noted a proportion of term delivery of 89.8% and a cesarean section occurrence of 11.7%. Ajong and Muniro reported lower proportions of deliveries at term; 59.9% and 60%, respectively [2] [3].

The main maternal complications observed in our study were post-partum hemorrhage (19.9%), genital tract tears (12.4%), endometritis (9.5%) and wound infection (8.7%). The occurrence of uterine rupture was 3.6%. In a study in Pakistan, Nadia *et al.* reported an occurrence of postpartum complications of 28%; postpartum hemorrhage was the most common maternal complication but the occurrence was lower (18%). This was followed by genital laceration (6%) [9]. Ajong reported a protective role of grand multiparity towards the risk of second to fourth degree perineal tears compared to lower-order parturients [2]. Desta *et al.* demonstrated a significant association between grand multiparity and the risk of uterine rupture which was 4.49 times higher [10]. Alsammani noted a significant association between grand multiparity on the one hand and the risk of cesarean section, macrosomia, pre-gestational diabetes and hypertension in pregnancy on the other [7]. In grand multiparas due to a decrease in muscular tissues and increase in fibrous tissues of uterus, uterine atony, as well as other complications like lacerations, is more common.

The mean birthweight was 3336.8 \pm 550 g, and the mean APGAR score was

7.7 ± 2.7. The main fetal complication was represented by infection (20.1%). The perinatal mortality ratio was 79.1 per 1000 livebirths. Mgaya reported a mean birth weight of 3003 ± 680 g and a low APGAR score compared to pauciparous women [4]. Muniro observed a significant association between grand multiparity on the one hand and premature rupture of membranes, premature delivery and intrapartum fetal death on the other [3]. In a similar study by Dassa in Ethiopia, the overall cumulative incidence of adverse perinatal outcomes was 33% with a higher risk of stillbirth, macrosomia, and preterm birth (adjusted relative risk: 1.6, 1.6, and 1.3 respectively), compared to their counterparts [11].

5. Limits

This was a descriptive study. Findings from this research need to be confirmed by an analytical study in order to attribute differences in occurrence to variables of interest more clearly. In addition, the retrospective aspect of the study made it impossible to obtain some details, hence contributing to limitation of interpretation of data.

We included women of all ages, such that the effect of increased maternal age on occurrence of maternal and perinatal complications could not be ruled out. Furthermore, the study was hospital based; as such the trends observed here may not reflect the situation in the community

6. Conclusion

The frequency of delivery of grand multiparas in the semi-urban locality of Ayos in Cameroon was relatively low (9.89%). The mean age of parturients was relatively high (38.96 years), and the rate of per vaginal delivery was moderate (88.3%). The most frequent maternal complications included post-partum hemorrhage (19.9%), genital tract tears (12.4%), endometritis (9.5%) and wound infection (8.7%). Fetal complications were mostly represented by neonatal infection (20.1%), perinatal death (7.9%) and neonatal asphyxia (9.5%).

Authors' Contributions

All authors participated in the design of the study, data acquisition, analysis of results and editing the manuscript.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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