



■ Original Research Article

Problems of Grand Multiparity in Labour and Delivery as Seen in Federal Teaching Hospital, Katsina (FTHK). A 5 Year Review

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ABSTRACT

Background: Grand multiparity is one of the leading causes of death and disability among women in developing countries, it is associated with problems during pregnancy and childbirth. **Objectives:** To determine the prevalence of grand multiparity and to compare the socio-demographic characteristics, complications, mode of delivery, maternal and perinatal outcomes of grand multiparity with multiparity in FTHK. **Methods:** This was a retrospective and a cross sectional study conducted over a five-year period. The antenatal/labour records of the grand multiparous (GMP) and multiparous (MP) women within the said period were retrieved and analyzed from patient's file. The data collected were subjected to computer analysis using software SPSS 22. **Results:** The prevalence of grand multiparity was 17.4%. The GMP women were found not to be significantly older than the MP women ($X^2=12.000$, $p=0.384$). Breech presentation was the commonest complication seen in the GMP women. The odds of having at least 1 complication were 4 times higher in GMP women compared with MP women (OR 3.92, 95%CI=3.07-5.00), 5.3% (44) of GMP women had assisted breech delivery compared with 0.6% (13) for MP women. The odds of having an unfavorable birth outcome were 5 times higher in the GMP women (OR 5.28, 95%CI=3.88-7.18). The rates of maternal death were also significantly higher among the GMP women compared with the MP women. **CONCLUSION:** Our study found a high rate of grand multiparity in our environment. It's obvious grand multiparity is still a source of great concern to the Obstetrician since it's associated with more maternal and perinatal problems than multiparity.

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INTRODUCTION

Pregnancy in GMP women is viewed with anxiety, especially by Obstetricians working with inadequate facilities in developing countries. Pregnancies in women with high parity are categorized as high-risk pregnancies

and can pose serious consequences to the mother, fetus, and the family.¹ The problem of GMP women in developing countries is compounded by a high prevalence of low socioeconomic status, poor female literacy, social deprivation as well as poor utilization of

family planning services.² Improving the socioeconomic standard of our women and increasing awareness about the importance of family planning will reduce the incidence and complications of grand multiparity.³ Despite the government's policies which favor small family size⁴, high parity still remains a common feature of our obstetric practice in developing countries.⁵

Grand multiparity and its attendant complications are sources of concern for the Obstetrician practicing in this environment.⁶ Understanding the complications associated with grand multiparity in our environment will lead to better preventive measures for these complications as they can be anticipated and prevented, thereby improving the maternal and perinatal outcomes for these pregnancies. It will also help in patient counselling regarding the need for family planning and child spacing. For the GMP women, the main pregnancy associated complications found in the literature were gestational diabetes and delivery of low-birth-weight babies.² The study was a cohort study that excluded women with fetal malpresentation. Exclusion of this major complication could reduce the prevalence of grand multiparity and distort the findings of the study. This study was therefore conducted with the aim of determining the pregnancy outcomes of GMP women in FTHK. The objectives were; to determine the prevalence of grand multiparity amongst the parturient in FTHK and to compare the socio-demographic characteristics, complications, mode of delivery, maternal and perinatal outcomes of grand multiparity with multiparity at FTHK.

MATERIALS AND METHOD

This was a retrospective, a comparative and a cross sectional study conducted over a five-year period between January 1st 2016 to December 31st 2020. The antenatal and labour records of all GMP and MP patients within the said period were retrieved and analysed from both electronic health record and patient's file. The unbooked patients and patients who booked but did not deliver at the centre were excluded from the study. The information obtained included: age, complication during labour and delivery, mode of delivery, maternal mortality and fetal outcome. The data collected were subjected to computer analysis using software SPSS 22.⁷ *P* value of less than 0.05 is statistically significant.

Complications are problems during labour and delivery while outcomes are maternal and neonatal problems immediately after delivery. The main limitation to this study was the inadequacy of some antenatal records as regards incomplete and missing data.

RESULTS

During this period, 5,021 patients delivered in the labour ward of this hospital and 4,781 folders were analysed due to paucity of information in 240 folders making a retrieval rate of 95.23%. Of these 834 (17.4%) were GMP women, 2,215 (46.4%) were MP women and 1,732 (36.2%) were primiparous women. The study was done on both the GMP and MP women.

Table I showed the age-group distribution amongst both groups where 91.6% of the GMP women fell between the ages of 26 and 40 years and 82.8% of the MP women fell between the ages of 21-35 years. The modal age among the GMP women was 34 years (34.5%) and 24 years (41.0%) among the MP women. Only one patient (0.1%) was below the age of 20 years amongst the GMP women. The GMP were found not to be significantly older than the MP women when their ages were compared ($X^2=12.000$, $p=0.384$).

Complications in labour as shown in Table 1 revealed breech presentation to be the commonest complication seen in the GMP women occurring in 27.2% (49 patients) of cases; while amongst the MP women, Pre-labour Rupture of Membranes (PROM) was the commonest complication in 31.3%, (42 patients) of cases. The odds of having at least one breech presentation during labour were 3 times higher in GMP women compared with MP women (OR 2.9, $X^2= 11.19$, $P=0.001$). For the GMP women, 13.3% had prolonged/obstructed labour while for MP women 3.7% had prolonged/obstructed labour. The odds of having at least one prolonged/obstructed labour were 4 times higher among the GMP compared with the MP women (OR 3.9, $X^2=7.34$, $P=0.006$). A large number of perineal lacerations were seen in both groups 20.2% (40 GMP women) and 15.7%, (21 MP women). Thirteen patients (7.3%) of the GMP women had ruptured uterus while only one patient of the MP women (0.8%) had ruptured uterus. The odds of having at least 1 ruptured uterus were 10 times higher among the GMP women compared with the MP women. Overall, 21.6% (180 GMP women) and 6.1% (134 MP) had complications. ($X^2=134.24$, $p<0.001$). The odds of having at least 1 complication were 4 times higher in grand multiparous compared with multiparous women (OR 3.92, 95%CI=3.07-5.00).

Table 2 showed Spontaneous Vaginal Delivery (SVD) to be the commonest mode of delivery amongst both groups 81.4% (679 GMP women) and 91.6% (2029 MP women) (OR 0.4, $X^2=62.29$, $P=<0.001$). For assisted breech delivery, 5.3% (44) of GMP women had this procedure while 0.6% (13) of MP women had the procedure. The odds of having at least 1 assisted breech delivery were 9 times higher for GMP women compared with MP women (OR 9.43, $X^2=70.08$, $P=<0.001$). Emergency lower

segment Caesarean section was seen in 10% (83 GMP women) as compared with 2.8% (63 MP women), the odds of having at least 1 emergency Caesarean section were 4 times higher in GMP women compared to MP women (OR 3.78, $X^2=65.59$, $P<0.001$). Forceps/vacuum delivery was commoner amongst the MP women 4.0% (88 patients) and it was only 1.9% (16 patients) amongst the GMP women. (OR 0.473, $X^2=7.15$, $P=0.007$).

Table 2 also showed that 85.5% (713) of the GMP women and 96.9% (2146) of the MP women had live babies. ($X^2=132.65$, $p<0.001$). The GMP women had more fresh stillbirths (FSB) 8.4% (70 patients) as

of the MP women had MSB (OR 4.53, $X^2=39.27$, $P<0.001$). Generally, the odds of having an unfavorable birth outcome were 5 times higher in the GMP women compared with the MP women (OR 5.28, 95%CI=3.88-7.18).

Table 2 also showed that 3.3% (27 GMP women) and 0.2% (5 MP women) died within the study period. The rates of maternal death were also significantly higher among women who were grand multigravida compared with the multigravida women, with mortality rates of 33 per 1000 and 2 per 1000 respectively ($X^2=50.06$, $p<0.001$). The odds of death in

Table 1: Distribution of Parity According to Age and Complication in Labour

Age in Years	Number of GMP	%	Number of MP	%	X^2	P value	
<20	1	0.1%	140	6.3			
21-25	32	3.8%	908	41.0			
26-30	226	27.1%	616	27.8	12.000	0.384	
31-35	284	34.5	311	14.0			
36-40	250	30.0%	156	7.1			
> 40	41	4.9%	84	3.8			
Total	834	100%	2215	100			
Complication in Labour	Number of GMP	%	Number of MP	%	OR	X^2	P Value
Prolonged/Obstructed labour	24	13.3	5	3.7	3.9	7.34	0.006*
Occipito-posterior Position	2	1.1	7	5.2	0.2	Fisher exact	0.034*
Post-Partum Haemorrhage	20	11.1	9	6.7	1.7	1.28	0.258
Breech Presentation	49	27.2	15	11.2	2.9	11.19	<0.001*
Retained Placenta	3	1.7	6	4.5	0.36	Fisher exact	0.129
Cord Prolapse	3	1.7	5	3.7	0.43	Fisher exact	0.21
Fetal Distress	8	4.4	10	7.5	0.58	0.8	0.37
Cervical Dystocia	2	1.1	5	3.7	0.28	Fisher exact	0.122
Perineal Laceration	40	22.2	21	15.7	1.54	1.71	0.191
Cervical Laceration	4	2.2	8	6.0	0.35	2	0.159
Pre-labour Ruptured of Membranes	12	6.7	42	31.3	0.15	31.14	<0.001*
Ruptured uterus	13	7.3	1	0.8	10.3	Fisher exact	0.013*
Total	180	100	134	100			

compared with 1.5% (32) of the MP women. (OR 6.25, $X^2=88.33$, $P<0.001$). Also, 4.9% (41) of the GMP women had macerated still birth (MSB) while 1.1%(25)

the women were 14 times higher in the GMP women compared with the MP women (OR=14.29, 95%CI=5.68-38.53). Table 2 also showed the main cause

of death amongst the GMP women to be ruptured uterus in 40.8% (11 patients), followed by hemorrhages in 25.9% (7) of cases. Hypertensive diseases in pregnancy (HDP) accounted for 60% of death (5) in the MP women.

DISCUSSION

The prevalence of GMP was 17.4% which was higher than 7.3% reported by Etadafe in Benin,⁸ 10 % by Ojiyi and 9.8% by Shahida et al in Imo⁹ and Ranpur¹⁰ respectively. The reasons for this relatively high incidence of grand multiparity in our environment may be due to the tendency towards large family size and poor acceptance and utilization of modern contraceptive methods which are more in northern environment.¹¹

Also, the research was conducted in a polygamy dominated area where competition from rival partners may encourage higher deliveries. The prevalence was less than that reported in a rural community in Cameroon

by Atem (27%).¹² The myth among some rural communities that having more children reflects how wealthy you are could explain this difference.

Most GMP women were within the age group 19 to 42years and the modal age was 34 years. These did not conform with the study by Ojiyi in Imo⁹ where most of the patients were aged 26 to 30years and the modal age was 36 years. This difference may be due to the early ages of marriage and hence early pregnancy seen in the northern part of the country as compared with the other parts.

The commonest labour complication was breech presentation in the GMP women while the commonest complication was PROM amongst the MP women. This is in contrast to a study conducted by Abdullahi¹³ in Abuja where postpartum hemorrhage was the commonest complication among GMP women and cephalopelvic disproportion was the commonest among MP women. These differences could be because University of Abuja Teaching Hospital, being a centre in

Table 2: Mode of Delivery, Fetal Outcome, Maternal Outcome and Cause of Death

Mode of Delivery	Number of GMP	%	Number of MP	%	OR	X2	P Value
Spontaneous vaginal Delivery	679	81.4	2029	91.6	0.4	62.29	< 0.001*
Assisted Breech Delivery	44	5.3	13	0.6	9.43	70.08	< 0.001*
Forceps/Vacuum	16	1.9	88	4.0	0.473	7.15	0.007*
Emergency LSCS	83	10.0	63	2.8	3.78	65.59	< 0.001*
Elective LSCS	12	1.4	22	1.0	1.46	0.72	0.396
Total	834	100	2215	100			
Fetal Outcome							
Live	713	85.5	2146	96.9	0.180	132.65	< 0.001*
FSB	70	8.4	32	1.5	6.25	88.33	< 0.001*
MSB	41	4.9	25	1.1	4.53	39.27	< 0.001*
Immediate Neonatal Death	10	1.2	12	0.5	2.22	2.79	0.094
Total	834	100	2215	100			
Maternal Outcome							
Alive	807	96.7	2210	99.8	0.07	50.06	< 0.001*
Dead	27	3.3	5	0.2	14.79	50.06	< 0.001*
Total	834	100	2215	100			
Cause of Death							
Haemorrhages	7	25.9	1	20	14	Fisher exact	0.633
Hypertensive Diseases of Pregnancy(HDP)	5	18.5	3	60	0.15	Fisher exact	0.085
Anaesthetic	4	14.8	-	-	infinity	Fisher exact	0.488
Ruptured Uterus	11	40.8	1	20		2.75 Fisher exact	0.366

a capital city could have more expertise for external cephalic version to rotate breech presentation before term. Perineal laceration was seen in 22.2% of GMP women and 15.7% of MP women as against 1% seen in GMP women in a study conducted by Sunder¹⁴. This difference may be due to the commonest labour complication (breech presentation) among GMP women in our centre which could lead to more cases of perineal laceration. Other labour complications seen amongst the GMP women in this laceration. Other labour complications seen amongst the GMP women in this study included prolonged obstructed labour 13.3%, ruptured uterus 7.3%, postpartum hemorrhage 11.1% and occipito posterior position 1.1% amongst others. These were much higher than that seen in the study in Abuja conducted by Abdullahi¹³ where prolonged labour was seen in 4.4% of cases and only 6% of patients had postpartum hemorrhage. This was unlike the study conducted by Noraihan¹⁵ where postpartum hemorrhage accounted for 1% of the complications of GMP women.

In our study, though 81.4% of the GMP women and 91.6% of the MP women had spontaneous vaginal delivery, obstetric interventions were required in 18.6% of the GMP women and 8.4% of the multiparous women in the form of Caesarean section, forceps or vacuum delivery (assisted vaginal delivery). Caesarean section rate was high 11.4% in the GMP women. These were in contrast to the findings by Ghadeer¹⁶ where 74.9% of GMP women had spontaneous vaginal deliveries and 76.8% of MP women had spontaneous vaginal delivery. The lower rate for spontaneous vaginal delivery in Ghadeer's study could be because women with multiple gestation, malpresentation and previous uterine scar were excluded from their study. In their study also, 1.2% of GMP women had instrumental delivery while 1.6% of MP women had instrumental delivery, Caesarean section accounted for 23.9%. The lower incidence of caesarean section in our study was most likely because of the skill for assisted breech delivery that is being practiced in our centre.

In this study, 85.5% of babies of the GMP women were live births while 14.5% were both stillbirths and early neonatal death, 96.9% of babies of MP women were live birth but 3.1% were both stillbirths and early neonatal death ($X^2=134.59$, $p<0.001$), these differences were statistically significant as the odds of having an unfavourable birth outcome were 5 times higher in the GMP women compared with the MP women (OR 5.28, 95%CI=3.88-7.18). This is unlike the study conducted by Abdullahi¹³ in Abuja where 91.4% of babies of GMP women were live births while 8.7% were stillbirths, 94.7% of babies of MP women had live birth but 5.3% were stillbirths. The difference in his study was not statistically significant. These could be a reflection of

the availability of standard perinatal care services in Abuja city.

The rates of maternal death were significantly higher among the GMP women compared with the MP women 33 per 1000 and 2 per 1000 respectively and the odds of death were 14 times higher among the grand multiparous women. This is quite high but similar to the study conducted by Ogedengbe¹⁷ in Lagos that showed the maternal mortality rate of 44 per 1000 among the GMP women which was more statistically significant than the one for the MP women. Similar finding was seen in other parts of the developing countries due to poor health facilities and lack of adequate medical care.¹⁰ This is in contrast with a study in Bahawalpur¹⁸ where maternal mortality rate among GMP women was quite lower 16 per 1000, their study was descriptive and they included all unbooked and referred cases, data collection could have been limited because of grief and emotion while filling the questionnaires. Also, a study conducted at Ibadan¹⁹ showed a four-fold increased risk of death among GMP women compared with the MP women, this was low compared with the findings in our study and it could be because the study centre was a secondary hospital and they refer most of their critical cases to the tertiary centre.

The commonest causes of death among the GMP women were ruptured uterus and haemorrhages. This is similar to the findings of other studies^{13,19,20,21}. This is unlike the study conducted in Uganda²² where the commonest cause of death was puerperal sepsis. This is probably because most of the patients in that study lived in a rural area where level of education is poor and access to good antibiotic is lacking.

CONCLUSION AND RECOMMENDATIONS

Our study found a high rate of grand multiparity in our environment with more than 1 in 6 women being grand multiparous. From this study and other similar studies in the developing world, grand multiparity is still a source of great concern to the Obstetrician since it is associated with increased maternal and perinatal morbidity and mortality when compared with multiparity.

To achieve a reduction of this preventable hazard in our environment there must be elevation of the social classes in the society, increase in the levels of literacy in the community, improved health facilities in the nation and provision of family planning services which are available, accessible and affordable amongst others. The importance of female empowerment and male participation in this issue cannot be overemphasized.

Conflict of Interest: The authors have no conflict of interest.

REFERENCE

1. Khadidiatou N, Erin P, Dieneba O, Allison M, Stella B. High-Risk Advanced Maternal Age and High Parity Pregnancy: Tackling a Neglected Need Through Formative Research and Action. *Glob Health Sci Pract.* 2018;6(2):372-383.
2. Ghadeer K, Gehan H, Amel A, Hazem A. Grand multiparity and the possible risk of adverse maternal and neonatal outcomes: a dilemma to be deciphered. *BMC Pregnancy Childbirth.* 2017;17:310.
3. Tamirat TD, Michael AO, Yadeta D. Effect of Grand Multiparity on the Adverse Birth Outcome: A Hospital-Based Prospective Cohort Study in Sidama Region, Ethiopia. *Int J Womens Health.* 2022;14:363–372.
4. Abe AJ, Tukur J, Aisha Abdurrahman, Nura Abdulkarim. Comparison of intramuscular pentazocine and intramuscular diclofenac for pain relief during mva at federal teaching hospital katsina- a randomized controlled trial. *Trop J Obste and Gynacol.* 2024; 42 (1): 42-49.
5. Ikeako LC, Nwajiaku L. Grand multiparity at Akwa, Nigeria. *Niger J. Clin Pract.* Ikeako 2010, 13(3); 301-305.
6. Quanbao J & Yixiao L. Low fertility and concurrent birth control policy in China. *The History of the Family.* 2016; 21 (4)
7. Patric I, Glenda N, Matthew A. Reasons for current pregnancy amongst grand multiparous Gambian women- a cross sectional survey. *BMC Pregnancy and Childbirth.* 2016; 217.
8. Etadafe P, Gharoro EP, Andrew A. Grand multiparity: Emerging Trend in a Tropical Community. *Trop J Obstet Gynaecol.* 2001; 18(1), 27-30.
9. Ojiyi EE, Dike EL, Anolue FC, Okeudo C, Uzoma OI, Uzoma MJ et al. Pregnancy outcome in Grand multiparae at University Teaching Hospital in Southeastern Nigeria. 2015; <http://www.webmedcentral.com>.
10. Shahida SM, Islam MA, Begum S, Hossain MA. Maternal outcome of grand multipara; *Mymensingh Med. J.* 2011; (20) (3): 381-385.
11. Federal Government of Nigeria, 2017. 2018 action for acceleration FP2020. Family planning 2020. Abuja. Nigeria: Federal Ministry of Health. http://www.familyplanning2020.org/nigeria_2018-2019_actions_for_acceleration.
12. Atem BA, Valirie NA, Larissa PS, Jean JN, Tsi N. Grand multiparity in rural Cameroon: Prevalence and adverse maternal and fetal outcomes. *BMC Pregnancy Childbirth.* 2019; 19: 233.
13. Abdullahi IH, Jubrin IB, Isah AY. Pregnancy outcome among Grand multiparous women in a Tertiary Hospital in Abuja. *EJPMR.* 2018; 5 (5), 685-690.
14. Sunder PS, Jyoti C, Divya M. A descriptive study: maternal and fetal outcome of grand muitipara. *Int J Reprod Contracept Obste Gynecol.* 2015; 4 (1): 219-223.
15. Noraihan MN, Choong KF, Suhaimi I, Edwin MS. Is Grand multiparity A Significant Risk Factor in This Millenium? *Malays J Med Sci.* 2006; 13(2): 52-60.
16. Ghadeer KA, Gehan HI, Hazem A, Amel AF. Grand multiparity and the possible risk of adverse maternal and neonatal outcomes: a dilemma to be deciphered. *BMC Pregnancy and Childbirth.* 2017; 17, 310.
17. Ogedengbe OK, Ogunmokun AA. Grand multiparity in Lagos, Nigeria. *The NPMJ* 2003;10(4):216-219.
18. Talat P, Tayyaba I, Tasneem K. Grand Multiparity and its Obstetrics Complications at Bahawal Victoria Hospital Bahawalpur. *PJMHS,* 2014; 8, 3.706-708.
19. Olopade FE, Lawoyin TO, Maternal Mortality in a Nigerian Maternity Hospital. *Afri. J. Biomed. Res.* 2008; 11; 267-273.
20. Aziz-Karim S, Memo A, Qadri N. Grandmultiparity: A Continuing Problem in Developing Countries. *Asia Oceania J. Obstet. Gynaecol.* 1989; 15(2): 155-160 *Pub Med. National Library of Medicine File: //A:/azeekarim.htm*.
21. Ibrahima T, Amelia W, Phyllis C. Maternal and neonatal outcomes of grand multiparas over two decades in Mali. *AOGS.* 2012; 91. 580-586.
22. Joseph N, Yarine FT, Peter KM, Wasswa S, Jerome K, Masembe Sezalio et al. Puerperal sepsis, the leading cause of maternal deaths at a Tertiary University Teaching Hospital in Uganda. *BMC Pregnancy and Childbirth.* 2016; 207,16