

FREQUENCY OF ANTENATAL COMPLICATIONS AMONG GRAND MULTIPAROUS WOMEN

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ABSTRACT

Background: Identifying antenatal complications in this group remains crucial to improving obstetric outcomes. **Objective:** To evaluate the frequency of antenatal complications among grand multiparous women presenting at a tertiary care hospital. **Study Design:** Cross-sectional descriptive study. **Setting:** Conducted at a tertiary care hospital (Department of Obstetrics and Gynecology, Saidu group of teaching hospital, Swat, Pakistan). **Duration of Study:** 11-October-2024 to 11-April-2025. **Methods:** A total of 164 grand multiparous women aged 25 to 40 years, with gestational ages beyond 28 weeks, were included. Anemia was defined as hemoglobin <11 g/dL with clinical symptoms such as pallor or dizziness. Pregnancy-induced hypertension (PIH) was defined as new-onset hypertension $\geq 140/90$ mmHg on two readings without proteinuria. Placenta previa was diagnosed via ultrasound, showing placental coverage of the cervical os. Descriptive and inferential statistics were applied to evaluate frequencies and associations. **Results:** The mean age of participants was 32.4 ± 4.8 years. Anemia was the most frequent complication (65.9%), followed by pregnancy-induced hypertension (20.7%) and placenta previa (15.9%). No statistically significant associations were observed between complications and patient demographics. **Conclusion:** Grand multiparity continues to pose substantial antenatal risks, particularly anemia (65.9%), PIH (20.7%), and placenta previa (15.9%). Targeted antenatal monitoring and early interventions are recommended to reduce maternal morbidity in this high-risk population.

Keywords: Grand Multiparity, Antenatal Complications, Anemia, Pregnancy-Induced Hypertension, Placenta Previa, Maternal Health

INTRODUCTION

Grand multiparity refers to the occurrence of five or more births that are alive, including stillbirths, following an age of viability. The phrase was first used in 1934: "the dangerous multiparas." The author characterized it as hazardous due to the consistent rise in pregnancy problems as well as maternal mortality from the fifth to tenth pregnancy (1). Nevertheless, current studies do not corroborate these results. Conflicting evidence from various studies has been issued on the influence of grand multiparity upon negative perinatal outcomes (2, 3). Grand multiparity has been recognized as a factor that elevates the probability of neonatal hospitalization (4). Developed countries demonstrate a low incidence of grand multiparity due to unrestricted access to contraceptives, comprehensive antenatal care, competent medical practitioners, as well as sufficient facilities, ensuring safe delivery. Consequently, high parity is not regarded as a risk factor for challenges associated with pregnancy. In contrast, an elevated incidence of grand multiparity was documented in "developing" nations (5, 6).

The negative perinatal outcomes remain a significant challenge to public health in nations with low or middle incomes. Premature delivery, stillbirth, as well as congenital anomalies represent prevalent adverse birth outcomes (7). Worldwide, around 2.6 million stillbirths occur yearly, equivalent to one every 16 seconds. Ninety-eight percent of those fatalities occurred in countries with low or middle incomes, with 75% taking place in Sub-Saharan Africa as well as Southern Asia. Nevertheless, more than 40% of stillbirths might have been averted with superior antepartum, as well as postpartum care, together with prompt access to emergency maternity services (8). A major risk factor for these fatalities was grand multiparity (9). A study recorded the frequency of antenatal complications in grand multiparous women, were anemia (69.8%) pregnancy pregnancy-induced hypertension (22.2%). And placenta previa (18.9%) (10). Grand multiparous women are at an increased risk of antenatal complications due to physiological and anatomical changes associated with multiple

pregnancies. As there is no such literature available on this subject locally, the goal of this study is to determine the frequency of antenatal complications among grand multiparous women at our hospital setup. The findings of this study will help our clinicians in understanding the frequency and nature of these complications is crucial for improving antenatal care protocols, optimizing maternal and neonatal outcomes, and informing targeted interventions to reduce morbidity and mortality among grand multiparous women.

METHODOLOGY

The methodology of this study employed a cross-sectional design conducted within the Department of Obstetrics and Gynecology, Saidu group of teaching hospital, Swat, from 11-October-2024 to 11-April-2025 after obtaining ethical clearance from the hospital. We enrolled 164 patients aged 25–40 years with gestational ages exceeding 28 weeks, with grand multiparity, which was defined as having five or more viable pregnancies beyond 20 weeks of gestation, irrespective of birth outcomes. We examined the antenatal complications which included anemia (hemoglobin <11 g/dl with associated symptoms such as pallor and dizziness), pregnancy-induced hypertension (new-onset systolic/diastolic blood pressure $\geq 140/90$ mmHg on two occasions without proteinuria accompanied by headaches or edema) and placenta previa (placental coverage of the cervical os confirmed via ultrasound in women presenting with painless bleeding). Those patients with hematologic disorders such as leukemia, thalassemia, or aplastic anemia were not selected.

The sample of patients was selected assuming a 95% confidence level, 6% margin of error, and an anticipated placenta previa frequency of 18.9% (10). Consecutive non-probability sampling was utilized to enroll patients. Ethical approvals were secured from institutional review boards, and participants provided informed consent after detailed explanations of the study's purpose and procedures.

After taking consent from the patients, we proceeded with data collection involved recording demographic variables which included

age, gestational age, and BMI: Socioeconomic status, residence, education, and occupation. Clinical assessments for complications were conducted under the supervision of a consultant with over five years of post-fellowship experience using a structured proforma. SPSS 25 was used to analyze the data. Quantitative variables were calculated using the mean and SD. Categorical variables, including antenatal complications, were calculated using frequency and percentages. Chi-Square test was used for stratification of various variables with antenatal complications, while P was kept notable at ≤ 0.05 .

RESULTS

The mean age of 164 grand multiparous women was 32.43 ± 4.79 years. Their average body mass index (BMI) was $24.98 \pm 1.39 \text{ kg/m}^2$, and their mean gestational age at the time of data collection was 32.87 ± 2.85 weeks.

Table 2 presents the demographic details of the patients, while Figure 1 presents the age distribution of the patients.

Antenatal complications were anemia, which was the most frequently reported complication, 108 (65.9%), while 56 (34.1%) did not present with this condition. Pregnancy-induced hypertension was observed in 34 (20.7%) patients, with 130 (79.3%) remaining unaffected. Placenta previa was less common, which occurred in 26 (15.9%) cases, while 138 (84.1%) did not exhibit this complication (Table 2). Stratification of antenatal complications with various demographic parameters, including gestational age, can be observed from tables 3 to 9.

Table 1: Demographics of the patients

Demographics		N	%
Socioeconomic status	Low (< 20K Rs/Month)	64	39.0%
	Middle (20 to 50K Rs/Month)	70	42.7%
	High (> 50K Rs/Month)	30	18.3%
Education status	Educated	78	47.6%
	Uneducated	86	52.4%

Occupation status	Employed	58	35.4%
	Unemployed	106	64.6%
Residence area	Rural	94	57.3%
	Urban	70	42.7%

Table 2: Antenatal complications

Antenatal complications		N	%
Anemia	Yes	108	65.9%
	No	56	34.1%
Pregnancy-induced hypertension	Yes	34	20.7%
	No	130	79.3%
Placenta Previa	Yes	26	15.9%
	No	138	84.1%

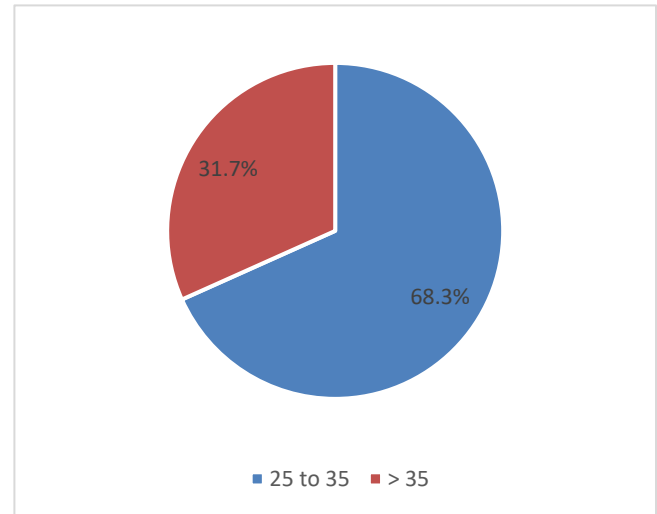


Figure 1: Age distribution (Years)

Table 3: Stratification of antenatal complications with age

Antenatal complications		Age distribution (Years)				P value
		25 to 35		> 35		
		N	%	N	%	
Anemia	Yes	72	66.7%	36	33.3%	0.53
	No	40	71.4%	16	28.6%	
Pregnancy-induced hypertension	Yes	24	70.6%	10	29.4%	0.74
	No	88	67.7%	42	32.3%	
Placenta previa	Yes	15	57.7%	11	42.3%	0.20
	No	97	70.3%	41	29.7%	

Table 4: Stratification of antenatal complications with socioeconomic status

Antenatal complications		Socioeconomic status						P value
		Low (< 20K Rs/Month)		Middle (20 to 50K Rs/Month)		High (> 50K Rs/Month)		
		N	%	N	%	N	%	
Anemia	Yes	40	37.0%	48	44.4%	20	18.5%	0.75
	No	24	42.9%	22	39.3%	10	17.9%	
Pregnancy-induced hypertension	Yes	13	38.2%	14	41.2%	7	20.6%	0.92
	No	51	39.2%	56	43.1%	23	17.7%	
Placenta previa	Yes	9	34.6%	13	50.0%	4	15.4%	0.71
	No	55	39.9%	57	41.3%	26	18.8%	

Table 5: Stratification of antenatal complications with education status

Antenatal complications		Education status		P value
		Educated	Uneducated	

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		N	%	N	%	
Anemia	Yes	50	46.3%	58	53.7%	0.65
	No	28	50.0%	28	50.0%	
Pregnancy-induced hypertension	Yes	17	50.0%	17	50.0%	0.74
	No	61	46.9%	69	53.1%	
Placenta previa	Yes	16	61.5%	10	38.5%	0.12
	No	62	44.9%	76	55.1%	

Table 6: Stratification of antenatal complications with residence area

Antenatal complications		Residence area				P value
		Rural		Urban		
		N	%	N	%	
Anemia	Yes	63	58.3%	45	41.7%	0.71
	No	31	55.4%	25	44.6%	
Pregnancy-induced hypertension	Yes	18	52.9%	16	47.1%	0.56
	No	76	58.5%	54	41.5%	
Placenta previa	Yes	15	57.7%	11	42.3%	0.96
	No	79	57.2%	59	42.8%	

Table 7: Stratification of antenatal complications with occupation status

Antenatal complications		Occupation status				P value
		Employed		Unemployed		
		N	%	N	%	
Anemia	Yes	39	36.1%	69	63.9%	0.78
	No	19	33.9%	37	66.1%	
Pregnancy-induced hypertension	Yes	14	41.2%	20	58.8%	0.42
	No	44	33.8%	86	66.2%	
Placenta previa	Yes	5	19.2%	21	80.8%	0.06
	No	53	38.4%	85	61.6%	

Table 8: Stratification of antenatal complications with BMI

Antenatal complications		BMI (Kg/m2)				P value
		18 to 24.9		> 24.9		
		N	%	N	%	
Anemia	Yes	60	55.6%	48	44.4%	0.49
	No	28	50.0%	28	50.0%	
Pregnancy-induced hypertension	Yes	15	44.1%	19	55.9%	0.21
	No	73	56.2%	57	43.8%	
Placenta previa	Yes	18	69.2%	8	30.8%	0.08
	No	70	50.7%	68	49.3%	

Table 9: Stratification of antenatal complications with gestational age

Antenatal complications		Gestational age (Weeks)				P value
		29 to 33		> 33		
		N	%	N	%	
Anemia	Yes	67	62.0%	41	38.0%	0.40
	No	31	55.4%	25	44.6%	
Pregnancy-induced hypertension	Yes	17	50.0%	17	50.0%	0.19
	No	81	62.3%	49	37.7%	
Placenta previa	Yes	17	65.4%	9	34.6%	0.52
	No	81	58.7%	57	41.3%	

DISCUSSION

The mean age of the participants was 32.43 ± 4.79 years, which is consistent with studies such as those by Alhainiah et al In their study, the mean age was 36.9 ± 4 years (11), and Aragaw et al showed that the average age was 31.7 ± 4 years (12).

Anemia in our study was observed in 65.9% of grand multiparous patients aligns with Kadir et al In their study, anemia was observed in 69.8% patients (10). At the same time, our rate of anemia contrasts with 45% reported by Alhainiah et al and 53.8% by Aragaw et al (11, 12). This discrepancy could be due to regional dietary deficiencies or

differences in healthcare access, emphasizing the need for targeted nutritional interventions in this population.

Pregnancy-induced hypertension (PIH) was observed in around 20.7% of our patients, a figure that aligns closely with 22.2% PIH cases reported by Kadir et al (10). Our PIH cases were higher than the 10.9% noted by Aragaw et al (12). This variability might reflect differences in diagnostic criteria or the prevalence of underlying health conditions such as obesity or genetic predisposition.

Placenta previa occurred in 15.9% of our multiparous cases, which is similar to 18.9% reported by Kadir et al (10). Our placenta previa rates were higher than the 5% reported by Alhainiah et al (11). This higher rate could be linked to the higher parity and potential uterine scarring

from previous pregnancies, underscoring the importance of ultrasound screening in grand multiparous women to mitigate risks. Socioeconomic status played a prominent role in our findings, with 39% of participants belonging to low-income groups. This aligns with Singh et al, where low socioeconomic status was related to poorer antenatal care and higher complication rates (13). Aragaw et al showed that the multiparous women had lower monthly income when compared to low-parity patients.¹² The majority of patients in our study were from rural residence (57.3%), which further explains these disparities, as there is limited access to healthcare facilities, often in these basic health units or district hospitals there is a scarcity of professional gynecologists which often delays the management of complications as these patients are referred to tertiary care setting. Education status also emerged as a critical factor with more than fifty percent of grand multiparous cases being uneducated, mirroring findings by Aragaw et al They showed that 73.9% of grand multiparas were unable to read and write. Interestingly, in low parity cases, only 30.3% could not read or write (12). Aragaw et al in their study did not explain this huge difference in lack of education between both of their groups, which enforces the gynecology professionals to explore this trend further. This highlights the correlation of education and health literacy in influencing pregnancy outcomes. Employment status revealed that 64.6% of grand multiparous women were not employed, a figure higher than the 48.7% reported by Aragaw et al. Unemployment may limit financial resources for healthcare, aggravating the risk of untreated complications.

CONCLUSION

We conclude that grand multiparity remains a notable risk factor for maternal complications such as anemia (65.9%), pregnancy-induced hypertension (20.7%), and placenta previa (15.9%). The high prevalence of these conditions enforces the need for targeted antenatal care and closer monitoring of grand multiparous women to mitigate these adverse outcomes.

DECLARATIONS

Data Availability Statement

All data generated or analysed during the study are included in the manuscript.

Ethics approval and consent to participate

Approved by the department Concerned. (34-ERB/023)

Consent for publication

Approved

Funding

Not applicable

CONFLICT OF INTEREST

The authors declare no conflict of interest.

AUTHOR CONTRIBUTION

SALMA BIBI (Trainee Medical Officer)

Study Design, Data entry, Data Collection, Data analysis, Drafting of an article, Review of manuscript and final approval of manuscript,

SAIMA PARVEEN (Assistant Professor)

Study Design, Conception of Study, Critical Input, and Final approval of manuscript.

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