

A STUDY TO ASSESS THE PREVALENCE AND FACTORS ASSOCIATED WITH GESTATIONAL HYPERTENSION AMONG PREGNANT MOTHERS IN SELECTED HOSPITAL, AIZAWL, MIZORAM

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Abstract: Gestational hypertension is a significant public health concern contributing to maternal and perinatal complications. Identifying its prevalence and associated factors is essential for early detection and effective antenatal care. This hospital-based cross-sectional study was conducted to assess the prevalence and factors associated with gestational hypertension among pregnant mothers at Civil Hospital, Aizawl, Mizoram. A total of 100 pregnant mothers were selected through purposive sampling. Descriptive and inferential statistics, including Chi-square tests, were applied using SPSS version 20.

The study found that the prevalence of gestational hypertension was 10% among the respondents. Most participants (79%) were aged 20-35 years, 71% resided in urban areas, and 84% had a normal BMI. Regarding associated factors, 26% reported a family history of hypertension, 11% had kidney disease, 42% consumed caffeine, 59% used tobacco, and 40% regularly consumed salty foods.

The Chi-square test revealed significant associations between gestational hypertension and educational status ($\chi^2 = 9.793$, $p = 0.044$) as well as history of hypertension ($\chi^2 = 9.091$, $p = 0.003$). Other demographic and lifestyle factors such as age, residence, BMI, caffeine or tobacco use showed no statistically significant association ($p > 0.05$).

The findings highlight that lower education levels and a personal history of hypertension increase the risk of gestational hypertension. Strengthening antenatal screening, health education, and risk-based monitoring can help reduce adverse maternal and perinatal outcomes in Mizoram.

Keywords: Gestational hypertension, prevalence, associated factors, pregnant mothers, Mizoram.

INTRODUCTION

Among the most frequent pregnancy-related medical complications, hypertensive disorders of pregnancy (HDP) which include gestational hypertension, pre-eclampsia, eclampsia, and chronic hypertension with superimposed preeclampsia are a major global cause of maternal and perinatal morbidity and mortality. (WHO, 2018)

One of the leading causes of maternal, fetal, and neonatal mortality worldwide, especially in middle and low income countries, is pregnancy-related hypertension disorders. Pregnancy-induced hypertensive diseases, including gestational hypertension, preeclampsia, and eclampsia, are all characterized by high blood pressure that causes varied degrees of multi-organ damage. Gestational hypertension affects roughly 10–15% of pregnancies, and up to 10–25% of those women will later develop proteinuria and other end-organ failures that are consistent with a preeclamptic diagnosis. (Tolosa et al. 2022)

Pregnancy-related elevated blood pressure is known as gestational hypertension. It occurs in about 6 percent of pregnancies. Young women experiencing their first pregnancy are often affected by this condition. Women who have diabetes, are over 35, have chronic hypertension, or have had hypertension during a previous pregnancy are more likely to have it. Typically, this issue starts in the second half of pregnancy. Usually, when your child is born, it goes away. (Philadelphia, 2014)

According to recent global analyses, the absolute number of pregnancies with gestational hypertension has increased in recent decades, reflecting changes in maternal risk profiles and population growth. For women of reproductive age, gestational hypertension continues to cause a significant burden of disease. Increases in risk factors including maternal obesity and aging mothers coincide with this growing load. (Tang et al. 2025)

Patients who have gestational hypertension frequently suffer from eclampsia, coma, oedema, increased blood pressure, and other organ damage. These symptoms can boost the mother's and the fetus's chance of dying. (Pan & Zhao, 2023)

In many places, a significant percentage of hypertensive disorders identified during prenatal care are gestational hypertension, which is defined as new-onset hypertension after 20 weeks of gestation without proteinuria. In India, population and hospital studies report prevalence estimates for hypertensive disorders of pregnancy in the single digits to low tens of percent, with heterogeneity between regions and facility types. Overall estimates for hypertension complicating pregnancy vary by region and study methodology. These variations highlight how clinical procedures and service planning require local hospital-level prevalence data. (Dhinwa et al., 2021)

Maternal risk factors for gestational hypertension are well-established and include nulliparity, advanced maternal age, obesity prior to pregnancy, preexisting chronic hypertension or diabetes, multiple pregnancies, and specific lifestyle and sociodemographic

factors (e.g., poor attendance at prenatal care, undernutrition, or conversely high body mass index). The long-term risk of chronic hypertension and cardiovascular disease is also elevated for women who experience pre-eclampsia or prenatal hypertension. (Gudeta & Regassa, 2019)

Pre-eclampsia and gestational hypertension raise the risk of both perinatal (fetal growth restriction, preterm birth, low birth weight, and perinatal death) and maternal (severe hypertension, stroke, renal impairment, and increased need for critical care) complications during pregnancy. These risks are decreased by early detection by antenatal surveillance and proper intervention, including timely delivery when warranted; nevertheless, in certain situations, ideal results may be limited by resource limitations and inconsistent obstetric care quality. (WHO, 2018).

A cross-sectional design study was conducted at Mizan Tepi University Teaching Hospital using quantitative data collection methods. The study found that 7.9% of women attending delivery services experienced gestational hypertension. Family history of the condition, chronic kidney disease, and gestational age were identified as significant predictors. (Gudeta & Regassa, 2019)

A cohort study in Bengaluru found that gestational hypertension in pregnancy is an emerging public health concern, with over one-tenth of antenatal women affected. The study emphasized the importance of primary care physicians in early detection and management during antenatal care (Nath et al., 2021).

NEED OF THE STUDY

Hypertensive disorders of pregnancy (HDP) are widely recognized as a leading cause of maternal and perinatal morbidity and mortality. These conditions contribute to significant maternal complications such as stroke, renal failure, and increased need for critical care, and are also associated with adverse fetal outcomes including fetal growth restriction, preterm birth, low birth weight, and perinatal death. Although timely detection and appropriate management can substantially reduce these risks, limited access to high-quality antenatal care in many settings continues to present challenges (WHO, 2018).

A study conducted in South Kerala, India, assessed the prevalence of pregnancy-related hypertensive disorders and associated risk factors among primiparous women. The research included all women who delivered at the study hospital between December 2020 and December 2021, yielding a total of 807 participants. Findings showed that 18.6% of primigravidae experienced hypertension during pregnancy, with gestational hypertension accounting for 79.3% of cases in the general population (Mathew et al., 2023).

In Ethiopia, a facility-based cross-sectional study involving 313 antenatal mothers was carried out in 2022 to determine the prevalence and contributing factors of pregnancy-induced hypertension. The study highlighted that pregnancy-induced hypertension accounts for approximately 10% of maternal deaths in Ethiopia, with a prevalence rate noted to be higher than national emergency obstetric and newborn care reports. Significant associations were identified between the condition and a history of chronic hypertension, renal disease, and diabetes mellitus (Getahun et al., 2022).

A survey-based case-control study conducted in Japan explored the relationship between gestational hypertension and the risk of developing hypertension in middle-aged to older women. The sample consisted of 62 hypertensive women and 75 normotensive controls. Using data from the Maternal and Child Health Handbook, the study identified that women with a history of gestational hypertension had a multivariable-adjusted odds ratio of 4.2 (95% CI: 1.0-17.5) for developing hypertension later in life, after controlling for factors such as age, BMI at recruitment, pre pregnancy BMI, and age at first delivery (Watanabe et al., 2020).

A prospective study undertaken in 2020 examined maternal hypertension and fetal outcomes among pregnant women, most of whom were aged 21 to 30 years, with a smaller proportion above 35 years. The majority of participants resided in rural areas (85%) and more than half were primigravidae. The study reported that 36.8% of women had a diastolic blood pressure of 110 mmHg at the time of pregnancy termination, highlighting the severity of hypertensive conditions within the cohort (Mallick et al., 2020).

In Shadegan, Iran, a case-control study in 2014 investigated the association between obesity and gestational hypertension among primigravidae women. The research included 310 women with gestational hypertension and 930 healthy pregnant controls. Results indicated that 9.6% of pregnant women developed gestational hypertension, and obese women had a 1.79-times higher risk of developing the condition. Other significant variables included maternal age, educational level, prior history of gestational hypertension, and place of residence (Moftakhar et al., 2018).

Further research by Sp and Mn (2020) in India analyzed the distribution of hypertensive disorders among pregnant women attending the obstetrics and gynecology department. Among 2,000 pregnant women, 200 were identified with pregnancy-related hypertension, representing a prevalence of 9.2%. The distribution included gestational hypertension (48.97%), preeclampsia-eclampsia (19.07%), preeclampsia superimposed on chronic hypertension (18.04%), and chronic hypertension (13.92%). The study confirmed that hypertensive disorders are relatively common during pregnancy.

A cross-sectional study conducted in North India assessed the prevalence of gestational hypertension among 200 participants who met the inclusion and exclusion criteria. Among them, 31 women were diagnosed with gestational hypertension and 169 were normotensive. Using chi-square analysis, the study reported a significant association ($p = 0.016244$), with an estimated prevalence of 13–15%, consistent with national trends (Gupta et al., 2022).

Despite the growing burden of hypertension and related risk factors in Mizoram, there is a lack of research examining gestational hypertension and its determinants among pregnant women in the state. Therefore, this study is conducted at Civil Hospital, Aizawl, to address this gap and generate evidence that can guide early detection, prevention, and management strategies for improving maternal and fetal outcomes.

OBJECTIVES

- To assess the prevalence of gestational hypertension among pregnant mothers attending antenatal clinic in selected hospital, Aizawl, Mizoram
- To identify the factors associated with gestational hypertension among pregnant mothers
- To examine the association between gestational hypertension among pregnant mothers attending antenatal clinic and selected demographic variables
- To examine the association between gestational hypertension among pregnant mothers attending antenatal clinic and associated factors.

ASSUMPTIONS

- Gestational hypertension rate is higher in pregnant women with higher BMIs.
- Gestational hypertension is more likely in families with a history of hypertension.

RESEARCH METHODOLOGY

The present study was conducted to assess the prevalence and factors associated with gestational hypertension among pregnant mothers in selected hospital, Aizawl, Mizoram.

Research approach: Quantitative research approach

Research design : Cross sectional descriptive research design.

Population: Pregnant mothers

Target Population : Pregnant mothers in Aizawl

Accessible Population : Pregnant mothers from selected hospital in Aizawl

Sample : 100 pregnant mothers.

Sampling technique : Purposive Sampling technique.

Theoretical framework: The conceptual framework for the study is based on Nola J. Pender's Health Promotion Model **Tools for data collection:**

Tool I: A self-administered questionnaire and a calibrated digital blood pressure machine were used to assess the prevalence of gestational hypertension.

Tool II: Self administered questionnaire to obtain demographic variables of the study participants

Tool III: Self administered questionnaire to assess factors associated with gestational hypertension

Data Analysis: Descriptive Statistics-Frequency, Percentage, and Chi-square are used.

Result: SPSS version 20 is used to analyze the collected data.

Table 1

Frequency and percentage distribution of the Socio-demographic variables

n=100

Sl no.	Demographic Variables	Frequency (f)	Percentage (%)
1	Age in years		
	a. < 20 years	10	10
	b. 20-35 years	79	79
	c. > 35 years	11	11
2	Residence		
	Rural	29	29
	Urban	71	71
3	Educational status		
	a. Primary school	4	4
	b. Middle school	20	20
	c. High school	43	43
	d. Higher school	24	24
	e. Graduate and above	9	9
4	Number of pregnancy		
	a.	1 39	39
	b.	2 29	29
	c.	3 14	14
	d.	4 18	18
	or more		
5	Gestational age		
	a.	2 32	32
	0-28 weeks	68	68
	b.	2	
	9-40 weeks		

6	Type of pregnancy		
a.	Single	S 98	98
b.	Multiple	2	2
7	BMI		
a.	Underweight	U 5	5
b.	Normal	84	84
c.	Overweight	N 11	11
d.	Obese	0	0

Table1 shows that the majority (79%) falling within the age range of 20 to 35 years, which is considered the optimal childbearing age. A smaller proportion was teenagers under 20 years (10%) and women over 35 years (11%), both of which may present increased obstetric risks. Most participants (71%) resided in urban areas, suggesting greater access to healthcare services and information, while only 29% were from rural backgrounds. In terms of education, 43% had completed high school, 24% had reached higher secondary level, and 9% were graduates or above. A smaller percentage had education only up to primary (4%) or middle school (20%), indicating that the majority had at least a basic level of formal education.

Regarding obstetric history, 39% of women were experiencing their first pregnancy, 29% their second, 14% their third, and 18% had four or more pregnancies. Most of the women (68%) were in the third trimester (29–40 weeks gestation), while the remaining 32% were in the second trimester (20–28 weeks), with no participants in the first trimester. Almost all pregnancies (98%) were singleton, with only 2% being multiple pregnancies, indicating a predominantly low-risk obstetric population.

In terms of nutritional status, based on BMI, 84% of the women had a normal body mass index, 11% were overweight, 5% underweight, and none were obese. Overall, the demographic profile indicates that the majority of participants is within a healthy reproductive age range, reside in urban areas, have at least a moderate level of education, are experiencing early or mid-order pregnancies, and have a normal BMI. These factors suggest a relatively low-risk group, though special attention may still be needed for those who are younger, have multiple pregnancies, or fall outside the normal BMI range.

Figure 1

Pie Chart showing distribution of prevalence of gestational hypertension among pregnant mothers

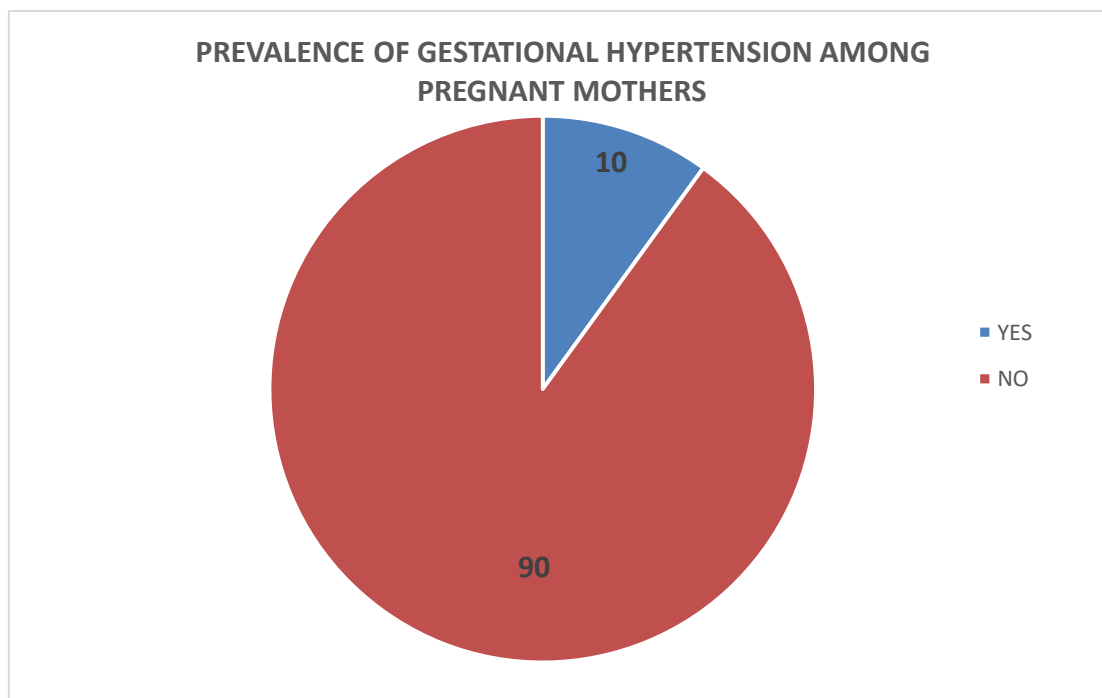


Figure 1 shows the prevalence of gestational hypertension among pregnant mothers. A large majority, 90%, do not have gestational hypertension, while only 10% are affected by the condition. This indicates that gestational hypertension is relatively uncommon within the surveyed group, affecting a small proportion of pregnant mothers compared to those who do not experience

Figure 2
Frequency and percentage distribution of factors of Gestational Hypertension among pregnant mothers

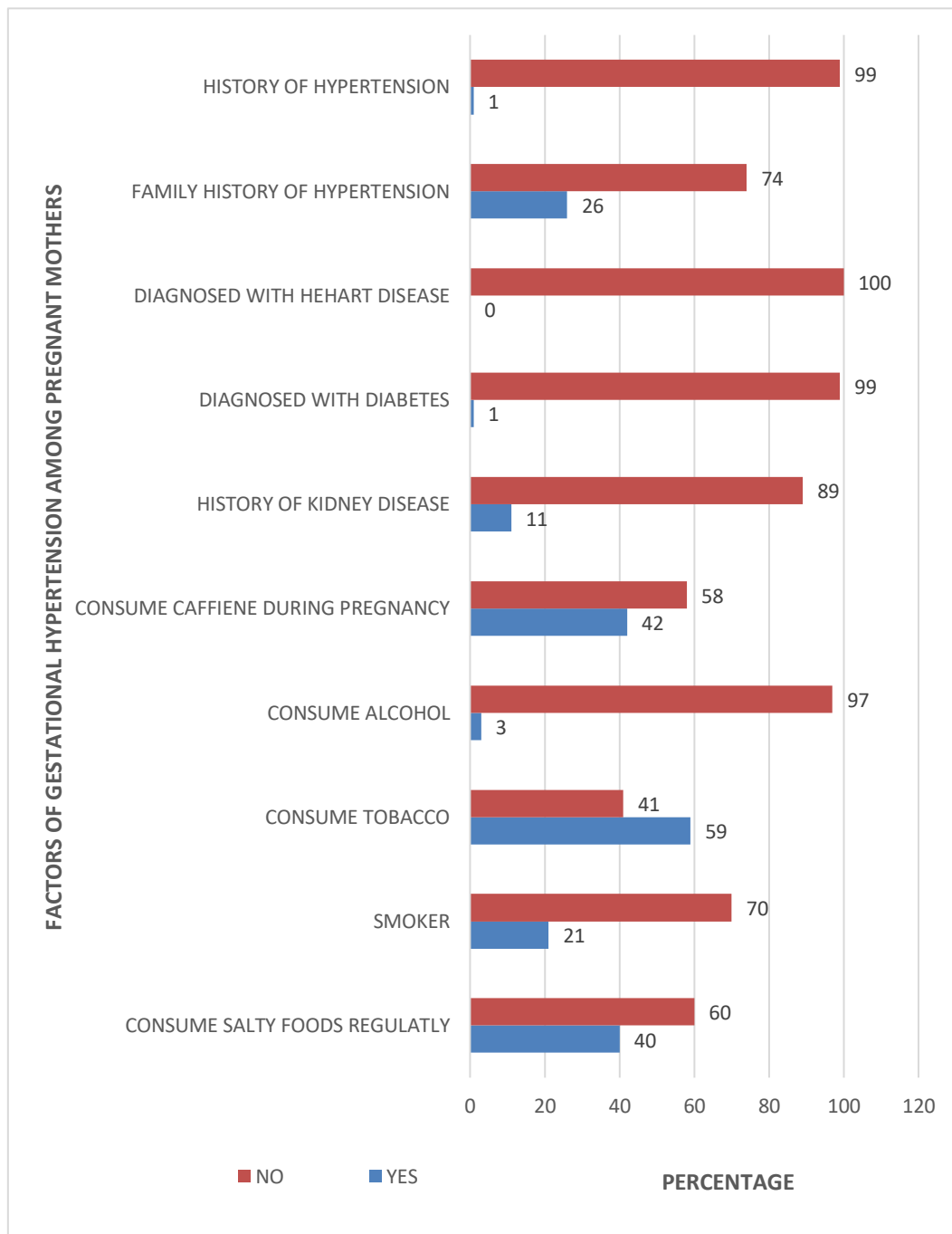


Figure2. presents various factors associated with gestational hypertension along with their frequencies and percentages among the surveyed group. A very small proportion (1%) of respondents reported having a personal history of hypertension, while 99% did not. However, 26% indicated a family history of hypertension, which may be a relevant risk factor. None of the participants (0%) were diagnosed with heart disease, and only 1% had diabetes. A history of kidney disease was reported by 11% of respondents. Regarding lifestyle factors, 42% consumed caffeine during pregnancy, while 58% did not. Alcohol consumption was low, with only 3% reporting use. Interestingly, tobacco use was reported by a majority of 59%, while 41% did not consume tobacco. Additionally, 21% of the respondents were smokers. Lastly, 40% regularly consumed salty foods, compared to 60% who did not. Overall, the table indicates that while personal medical risk factors like hypertension, heart disease, and diabetes are relatively uncommon, family history, kidney disease, and certain lifestyle factors such as caffeine intake, tobacco use, smoking, and salty food consumption are more prevalent and may contribute to the risk of gestational hypertension.

Table 2
Association between the prevalence of gestational hypertension and selected demographic variables

n=100						
Demographic variables		Prevalence		χ^2 value	df	p value
		Yes	No			
Age in years						
a.	< 20 years	1	9	0.932	2	0.627 ^{NS}
b.	20-35 years	7	72			
c.	> 35 years	2	9			
Residence						
a.	Rural	5	24	2.380	1	0.123 ^{NS}
b.	Urban	5	66			
Educational status						
a.	Primary school	1	3	9.793	4	0.044*
b.	Middle school	1	19			
c.	High school'	5	38			
d.	Higher school	0	24			
e.	Graduate and above	3	6			
Number of pregnancy						
a.	1	4	35	2.047	3	0.563 ^{NS}
b.	2	4	25			
c.	3	0	14			
d.	4 or more	2	16			
Gestational age						
a.	20-28 weeks	2	30	0.735	1	0.391 ^{NS}
b.	29-40 weeks	8	60			
Type of pregnancy						
a.	Single	10	88	0.227	1	0.634 ^{NS}
b.	Multiple	0	2			
BMI						
a.	Underweight	1	4	4.964	2	0.084 ^{NS}
b.	Normal	6	78			
c.	Overweight	3	8			
d.	Obese	0	0			
*P<0.05 level of significance				NS-Non significance		

Table 2 presents the Chi-square analysis of demographic variables and their association with gestational hypertension. Educational status showed a significant relationship with the condition ($\chi^2 = 9.793$, $df = 4$, $p = 0.044$), indicating its potential influence on risk. Other variables such as age, residence, parity, gestational age, type of pregnancy, and BMI were not significantly associated, as all p-values exceeded 0.05. Thus, educational status was the only demographic factor meaningfully linked to gestational hypertension in this study.

Table 3
Association between prevalence and factors associated with gestational hypertension.

Factors associated	prevalence		n=100		
	Yes	No	χ^2 value	df	p value
Do you have a history of hypertension?					
a. Yes	1	0	9.091	1	0.003*
b. No	9	90			
Do you have a family history of hypertension?					
a. Yes	4	22	1.132	1	0.287 ^{NS}
b. No	6	68			
Are you diagnosed with any heart disease?					
a. Yes	0	0	NA	NA	NA
b. No	10	90			
Are you diagnosed with diabetes?					
a. Yes			0.112	1	0.738 ^{NS}
b. No	0	1			
	10	89			
Any history of kidney disease?					
a. Yes	0	11	1.373	1	0.241 ^{NS}
b. No	10	79			
Do you consume caffeine during pregnancy?					
a. Yes	3	39	0.657	1	0.418 ^{NS}
b. No	7	51			
Do you consume alcohol?					
a. Yes	0	3	0.344	1	0.558 ^{NS}
b. No	10	87			
Do you consume Tobacco?					
a. Yes	4	55	1.658	1	0.198 ^{NS}
b. No	6	35			
Are you a smoker?					
a. Yes	2	19	0.007	1	0.935 ^{NS}
b. No	8	71			
Do you consume salty foods regularly?					
a. Yes	3	37	0.463	1	0.496 ^{NS}
b. No	7	53			

*P<0.05 level of significance

NS-Non significance

Table 3 presents the analysis of various factors associated with the prevalence of gestational hypertension using Chi-square tests. Among the factors examined, having a history of hypertension shows a statistically significant association with gestational hypertension ($\chi^2 = 9.091$, $df = 1$, $p = 0.003$), indicating that women with a prior history of hypertension are more likely to develop gestational hypertension.

In contrast, other factors including family history of hypertension, diabetes, kidney disease, caffeine consumption, alcohol use, tobacco use, smoking, and regular consumption of salty foods did not show significant associations, as their p-values were all greater than 0.05. Additionally, heart disease could not be analyzed due to a lack of cases (NA values).

The study found that Chi-square test results revealed a statistically significant association between educational status and gestational hypertension ($\chi^2 = 9.793$, $p = 0.044$), as well as between history of hypertension and gestational hypertension ($\chi^2 = 9.091$, $p = 0.003$). The findings indicate that educational status and a history of hypertension play a significant role in the occurrence of gestational hypertension among the study population. Specifically, women with lower education levels or a previous history of hypertension were more likely to develop the condition. This suggests that both socio-demographic factors and pre-existing health conditions influence the risk of gestational hypertension. In contrast, other demographic and lifestyle variables showed no statistically significant association ($p > 0.05$).

The findings show that only a personal history of hypertension was significantly associated with gestational hypertension, while other lifestyle and health factors showed no meaningful relationship. The study's assumptions regarding the influence of BMI ($\chi^2 = 4.964$, $p = 0.084$) and family history of hypertension ($\chi^2 = 1.132$, $p = 0.287$) were not supported, likely due to the small number of

overweight participants and absence of obesity. These results suggest that individual health status, particularly personal hypertension history, plays a more direct role than BMI, family history, or educational status in this population

DISCUSSION

Objective 1: To assess the prevalence of Gestational Hypertension among pregnant mothers.

The present study found that the prevalence of gestational hypertension (GH) among pregnant mothers attending the antenatal clinic was 10%. This finding aligns with global estimates reported by the World Health Organization (WHO, 2018), which suggest that 5–10% of pregnancies are complicated by GH. Similarly, Sengodan et al. (2020) reported a prevalence of 10.4% in Tamil Nadu, India, while Thapa et al. (2021) observed a slightly lower prevalence of 6.43% in Nepal.

In contrast, some regional studies reported higher prevalence rates. For instance, Mirzaei et al. (2020) reported a 22% prevalence in Coimbatore, India, and Mathew et al. (2023) found 18.6% among primigravidae in Kerala. These variations may reflect differences in population characteristics, sampling methods, diagnostic criteria, or health care access.

Lower prevalence rates have also been observed in developed countries. Laine et al. (2019) reported GH prevalence of 1.7% in singleton pregnancies and 2.2% in twin pregnancies in Norway, possibly due to early detection, better antenatal care, and different demographic risk profiles.

Objective 2: To identify the factors associated with Gestational Hypertension among pregnant mothers

The study identified several factors potentially associated with gestational hypertension among the participants. Notably, a personal history of hypertension was significantly associated with GH ($\chi^2 = 9.091$, $p = 0.003$), with affected mothers showing a higher proportion of GH compared to those without prior hypertension. This finding is consistent with Lewandowska (2021) and Mathew et al. (2023), who highlighted that women with pre-existing hypertension are at substantially increased risk of developing hypertensive disorders during pregnancy.

Other maternal and lifestyle factors, such as family history of hypertension (26%), BMI, diabetes (1%), kidney disease (11%), and lifestyle behaviors including caffeine consumption (42%), alcohol use (3%), tobacco use (59%), smoking (21%), and regular intake of salty foods (40%), were not significantly associated with GH in this study. These results partly contrast with prior studies: for example, Mathew et al. (2023), Pavlidou et al. (2023), and Moftakhar et al. (2018) reported significant associations of GH with family history, overweight/obesity, and other metabolic risk factors. The lack of significant association in this study may be attributed to sample size limitations, low prevalence of certain conditions (e.g., diabetes, heart disease), and the predominance of normal BMI (84%) among participants.

Objective 3: To examine the association between Gestational Hypertension and Demographic Variables

The present study examined the relationship between gestational hypertension (GH) and selected demographic variables. Among these, educational status showed a statistically significant association with GH ($\chi^2 = 9.793$, $p = 0.044$), with women having lower education levels demonstrating a higher risk of developing GH. This aligns with Bairwa et al. (2020), who reported that pregnancy-induced hypertension was more prevalent among women with less than a high school education. The association may reflect disparities in health literacy, access to antenatal care, and awareness of risk factors.

Other demographic variables including age, residence, parity, gestational age, type of pregnancy, and BMI did not show statistically significant associations in this study, although trends were observed. For instance, women over 35 years of age and those who were overweight had a higher proportion of GH, consistent with findings by Lewandowska et al. (2020) and Kuciene & Dulskiene (2022), who reported that advanced maternal age and elevated BMI increased the risk of gestational hypertension.

The lack of significant associations for most demographic variables may be due to the relatively homogeneous sample, with the majority of participants residing in urban areas (71%), having normal BMI (84%), and being within the 20–35 year age group (79%). These factors may have limited variability and statistical power to detect associations, even when trends suggest potential influence.

Objective 4: To examine the association between Gestational Hypertension and Associated Factors

The present study analyzed the association between gestational hypertension (GH) and various clinical and lifestyle factors. Among these, a personal history of hypertension was the only factor that showed a statistically significant association with GH ($\chi^2 = 9.091$, $p = 0.003$). Mothers with a prior history of hypertension were more likely to develop GH, which is consistent with Lewandowska (2021) and Mathew et al. (2023), who reported that pre-existing hypertension significantly increases the risk of hypertensive disorders during pregnancy. This finding highlights the importance of early identification and close monitoring of women with a history of hypertension to prevent adverse maternal and fetal outcomes.

Other factors, including family history of hypertension (26%), BMI (84% normal; 11% overweight), diabetes (1%), kidney disease (11%), and lifestyle factors such as caffeine consumption (42%), alcohol (3%), tobacco (59%), smoking (21%), and regular intake of salty foods (40%), were not significantly associated with GH in this study. Although these factors have been identified as potential risk contributors in larger studies (Moftakhar et al., 2018; Pavlidou et al., 2023; Nath et al., 2021), the lack of significant association in this sample may be attributed to the small sample size, low prevalence of certain conditions (e.g., diabetes, heart disease), and limited variability in BMI, which reduces statistical power to detect meaningful relationships

CONCLUSION

Gestational hypertension remains a significant health concern among pregnant mothers, with a prevalence of 10% in the study population at Civil Hospital, Aizawl. The study identified personal history of hypertension, lower educational level, and older maternal age as significant factors associated with GH, while other factors such as BMI, family history, and lifestyle variables showed trends but were not statistically significant. These findings highlight the multifactorial nature of gestational hypertension and the need for early identification and targeted interventions.

The results underscore the critical role of nurses in antenatal screening, health education, and risk prevention. Strengthening nursing education, clinical practice, and administrative support, along with promoting research, can enhance maternal care and reduce the

complications associated with GH. This study provides valuable insights into the prevalence and associated factors of gestational hypertension in Mizoram, which can inform public health strategies and improve maternal and neonatal outcomes.

ACKNOWLEDGMENT

First and foremost, I give my deepest gratitude to Almighty God for His abundant blessings, guidance, and strength throughout the course of this study. His grace has been my constant source of wisdom, courage, and perseverance, enabling me to complete this research successfully.

I would like to express my heartfelt gratitude to the Director of RIPANS, Dr. Sanjay D. Sawant for providing me with the opportunity and resources to pursue this research. Your vision and support have played a vital role in the successful completion of this work.

I express our heartfelt gratitude to Prof. Lalfamkimi, Principal, College of Nursing RIPANS for their constant support, guidance, and encouragement throughout the course of this study. I am sincerely thankful for providing us with the necessary facilities, a conducive learning environment, and continuous support, which enabled us to successfully complete this research.

I also extend our deep appreciation to our Vice Principal, C. Lalramdini, for her kind support, encouragement, and guidance throughout the study. Her constant motivation and helpful suggestions have played a significant role in the successful completion of this work.

I extend my deepest appreciation to my Guide, Professor Nongmeikapam Monika, for your invaluable guidance, encouragement, and continuous support throughout every stage of this research. Your expertise and insights have been instrumental in shaping the direction and outcome of this study.

I am also sincerely thankful to my Co-Guide, Mrs. Laldinpui Sailo, for your constant encouragement, constructive feedback, and timely advice, which significantly enriched the quality of this work.

My special thanks and deep gratitude go to our beloved Nursing research coordinators, Mrs. Laltanpui and Mrs. Lalremruati, for their dedicated guidance, constructive feedback, and continuous encouragement throughout the research process. Their support and patience have been truly invaluable.

I am also sincerely thankful to Dr. Domuanlal, for his expert guidance and assistance in data analysis. His valuable inputs have strengthened the quality and accuracy of this research.

I would also like to convey my heartfelt thanks to Ms. Khusi R. Marak, the most humble teacher, for her invaluable help and guidance in data analysis for my study.

My sincere thanks go to all the tool validators who generously shared their time and expertise to evaluate and validate the research tools. Your contributions have been crucial in ensuring the accuracy and reliability of this study.

I am especially grateful to Prof. H. Lalruatsanga, HOD, Department of Life Sciences, Pachhunga University College, for generously providing the calibration certificate at a crucial time during my research.

I would like to express my sincere gratitude to the Medical Superintendent of Civil Hospital, Aizawl, Mizoram, for granting me permission to conduct my research study in the hospital. I would also like to extend my heartfelt thanks to the staffs, Department of Obstetrics and Gynaecology for their invaluable support and assistance during the period of data and sample collection. Their guidance and cooperation were crucial in the successful completion of this study.

I am truly thankful to my family for always being there for me, showering me with love, patience, and encouragement every step of the way. Their belief in me gave me the strength to persevere through challenges. And my deepest gratitude to my beloved sisters, who have been my greatest source of strength and inspirations. Despite facing their own struggles in life, my well-being has always been their first priority. Their constant love, guidance, and sacrifices have shaped who I am today. You are not only my sisters but also my role model and my greatest blessings.

I would like to express my heartfelt gratitude to my dear long distance friends, who, despite being miles away, remained close to my heart throughout this journey. Even from afar, you found ways to uplift my spirit, remind me of my worth, and believe in my abilities when I doubted myself. Your care for my mental well-being has been a true blessing, and I am deeply grateful to each of you for standing by me with unwavering love, patience, and understanding. This accomplishment would not have been possible without your presence in my life.

Lastly, I extend my sincere appreciation to my classmates for their constant encouragement, meaningful last-minute yet impactful discussions, and wonderful companionship. Your support has been a true source of motivation and reassurance throughout this journey.

Last but not least, I want to express my gratitude to everyone who helped me with my thesis, providing support and direction that enabled me to accomplish this goal.

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