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Original Article

Knowledge And Awareness Of Pregnancy Induced Hypertension Among Women Of Child Bearing Age At Okofia Community, Nnewi, Anambra State, Nigeria.

Anike Collins C, Silas Esther A*.

Department of Nursing, Faculty of Health Sciences and Technology, Nnamdi Azikiwe University, Nnewi Campus, Anambra State, Nigeria.

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ABSTRACT

Pregnancy-induced hypertension (PIH) remains a significant contributor to maternal and perinatal morbidity and mortality, particularly in low-resource settings such as rural communities in Nigeria. This study assessed the knowledge and awareness of PIH among women of childbearing age in Okofia Community, Anambra State. A descriptive cross-sectional survey design was employed, with a sample size of 88 women selected using convenient sampling technique. Data were collected using a self-structured questionnaire and data analysis was conducted using descriptive statistics presented in frequencies and percentages. Findings revealed that 69.3% of the respondents had heard about PIH, with healthcare providers being the most common source of information. While 67.0% correctly identified PIH as high blood pressure during pregnancy, knowledge of symptoms, causes, and complications was moderate. Awareness levels were generally high, with 70.5% having discussed PIH with healthcare providers; however, regular antenatal attendance was suboptimal. Financial constraints, poor access to healthcare facilities, and cultural beliefs were major barriers to seeking timely maternal healthcare. The study also found no statistically significant association between knowledge or awareness and sociodemographic factors such as age, education, or income. In conclusion, although basic awareness of PIH is present among women in Okofia, comprehensive knowledge and proactive healthcare-seeking behaviors remain limited. Implementation of intensified community-based health education programs, improved access to affordable antenatal care services, and the involvement of community leaders to promote maternal health are recommended as these interventions are crucial to reducing the burden of PIH and improving maternal and neonatal outcomes in rural Nigerian communities.

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Introduction

Pregnancy-induced hypertension (PIH), commonly referred to as gestational hypertension, is a form of high blood pressure that develops after 20 weeks of pregnancy in women who previously exhibited normal blood pressure levels. According to American College of Obstetricians and Gynecologists [ACOG] [1], it is one of the most prevalent medical complications during pregnancy and a leading contributor to maternal and perinatal morbidity and mortality worldwide. PIH is part of a broader spectrum of hypertensive disorders in pregnancy, which includes chronic hypertension, preeclampsia, eclampsia, and superimposed preeclampsia. Preeclampsia, with or without severe features, is a disorder of pregnancy associated with new-onset hypertension, usually with accompanying proteinuria, which occurs most often after 20 weeks of gestation and frequently near term[2].

Corresponding author:

Silas Esther A.
Department of Nursing,
Faculty of Health Sciences and Technology,
Nnamdi Azikiwe University, Nnewi Campus,
Anambra State, Nigeria.

Email: ea.silas@unizik.edu.ng.

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Maternal mortality is unacceptably high. About 260 000 women died during and following pregnancy and childbirth in 2023 and approximately 92% of all maternal deaths occurred in low- and lower-middle-income countries in 2023, and most could have been prevented[3].Also according to World Health Organization,[3] major complications that account for around 75% of all maternal deaths are: postpartum hemorrhage, infections (usually after childbirth), high blood pressure during pregnancy (pre-eclampsia and eclampsia),complications from delivery and unsafe abortion.

Globally, hypertensive disorders affect about 5–10% of pregnancies, with PIH accounting for a significant proportion of these cases [4]. According to the World Health Organization (WHO), hypertensive disorders in pregnancy, including PIH, are responsible for about 14% of all maternal deaths, making them the second leading direct cause of maternal mortality after hemorrhage [5]. This disease represents a spectrum of hypertensive disease in pregnancy, beginning with gestational hypertension and progressing to develop severe features, ultimately leading to its more severe manifestations, such as eclampsia and HELLP syndrome.

This disease encompasses 2% to 8% of pregnancy-related complications, more than 50,000 maternal deaths, and over 500,000 fetal deaths worldwide[2]. The effects of PIH are not limited to the mother alone. It has adverse consequences for the fetus, including intrauterine growth restriction, placental insufficiency, low birth weight, premature delivery, and perinatal death[6].

The maternal mortality ratio in Nigeria remains alarmingly high, estimated at 512 per 100,000 live births, with Pregnancy InducedHypertension playing a major role [7]. The country also experiences poor antenatal coverage and inadequate health education in rural areas, thereby exacerbating the outcomes of hypertensive disorders in pregnancy; this was discovered in a study by Lateef, Kuupiel, Mchunu and Pillay [8] on the utilization of antenatal care and skilled birth delivery services in Sub-Saharan Africa.

However, knowledge and awareness are cardinalto preventing complications of any disease condition including Pregnancy Induced Hypertension (PIH). Awareness of PIH refers to superficial understanding of pregnancy induced hypertension while the knowledge is an in depth understanding of pregnancy induced hypertension [9]. Awareness and knowledge of Pregnancy induced hypertension enables pregnant women to recognize early warning signs such as persistent headaches, blurred vision, swelling in the hands and face, and sudden weight gain.

Early detection through routine antenatal care and prompt intervention can significantly reduce the risk of progression to life-threatening conditions like eclampsia or organ failure [10]. Unfortunately, many women in underserved areas still consider such symptoms as normal parts of pregnancy or prefer to consult traditional healers, leading to dangerous delays in seeking medical attention[11].

Cultural and religious beliefs can also influence the way maternal complications like PIH are perceived and managed. In many rural communities according to Opara, Iheanacho and Petrucka[12], pregnancy is deeply embedded in traditional customs, and the involvement of older women, traditional birth attendants, and religious leaders can either support or hinder the adoption of modern healthcare practices. Also, where beliefs in supernatural causes of illness dominate, biomedical explanations may be disregarded, further reducing the likelihood of timely hospital visits [12].

Another major barrier is the low level of formal education among women in rural settings. Educational attainment is strongly correlated with health-seeking behavior. Women with higher levels of education are more likely to attend antenatal care, understand medical advice, and follow through with treatment regimens [13]. In addition, healthcare deficiencies such as understaffed clinics, lack of diagnostic equipment, poor referral systems, and unmotivated healthcare workers also compromise the early detection and management of PIH. Rural health centers may be the only available option for many women, yet they are often ill-equipped to provide comprehensive antenatal monitoring or manage obstetric emergencies [14].

In light of these numerous issues, it is very important to determine the current level of knowledge and awareness of Pregnancy Induced Hypertensionand also the sociodemographic factors (such as age, education, and socioeconomic status) that affect/influence the level of knowledge and awareness of pregnancy-induced hypertension among women of childbearing age in Okofia which is a rural community in Anambra State, Nigeria.

MATERIALS AND METHODS

Research Design: This study employed a descriptive cross-sectional survey design to assess the knowledge, awareness, and healthcare-seeking behavior regarding Pregnancy-Induced Hypertension (PIH) among women of childbearing age in Okofia Community, Anambra State.
Area of Study: This study was carried out in Okofia Otolo, Nnewi North Local Government Area, Anambra State, which is a small village located in Otolo Nnewi North Anambra State, Nigeria.

Population and Sample Size: The target population comprises women of reproductive age (15-49 years) residing in Okofia Community, Otolo Nnewi, in Nnewi North Local Government Area, Anambra State. According to estimations given by the Village Head, the population in Okofia Community is 10,000.A sample of 385 was drawn from the total population of 10000 using Taro Yamane formula for sample size calculation.According to World Health Organization [15], approximately 23% of the global population are women of childbearing age. Therefore 23% of 385 is 88 which is the sample size for the study.

Convenient sampling technique was utilized to select women of childbearing age in Okofia community.

Instrument for Data Collection: A self-structured questionnaire was used for data collection in this study and it was designed based on the objectives of the study. The data were collected by the use of 24 items self-structured questionnaire. The questionnaire consists of four sections (A, B, C, D). Section A contain items that were used to elicit information on the respondent's demographic variables. Section B contain items that were used to obtain on information on their knowledge of pregnancy induced hypertension. Section C contain items that was used to divulge information on their awareness of Pregnancy induced hypertension. The instrument was checked for face and content validity by an expert in Maternal and child health Nursing. Some of the items were modified, and corrections were made by the researcher before the instrument was considered valid for use.

Ethical Consideration: An identification letter was presented to the head of Okofia community who gave approval for the study to be carried out after ascertaining the purpose of study and after going through the questionnaire. The consent of the respondents was also elicited.

Procedures for Data Collection: The researcher obtained a letter of introduction from the Head of the Department, of Nursing Sciences, Nnamdi Azikiwe University. The researcher sought and obtained an ethical clearance from the traditional head (Igwe) of Nnewi in orderto obtain permission to collect data. Data collection was done daily and lasted for one week. The women were given the questionnaires and it was collected as soon as they finished answering the questionnaire. However, before the questionnaires was distributed, the consent and cooperation of the women were solicited for, confidentiality assured and explanations on how to fill the questionnaire was made.

Method of Data Analysis: Data generated from the study were tallied and descriptively analyzed using SPSS version 29. They were presented in tables, frequency, and simple percentages.Chi-square is significant at p-value < 0.05

RESULTS

Table 1: Sociodemographic data

Variables	Frequency (n = 88)	Percentages
Age		
15-24 years	14	15.9%
25-34 years	30	34.1%
35-44 years	24	27.3%
45-above years	20	22.7%
Marital Status		
Single	14	15.9%
Married	42	47.7%
Widowed	17	19.3%
Divorced		
	15	17.0%
Level of education		
Primary	23	26.1%
Secondary	37	42.0%
Tertiary		
	28	31.8%
Occupation		
Civil servant	8	9.1%
Trader	34	38.6%
Farmer	22	25.0%
Artisan		
	24	27.3%
Income		
Above #50,000	43	48.9%
Below #50,000	45	51.1%

Table 1 is showing the sociodemographic data of the respondents. The most represented age group was 25–34 years (34.1%), followed by 35–44 years (27.3%). A significant proportion of participants (47.7%) were married, while 19.3% were widowed, and 17.0% were divorced. Regarding education, the highest percentage of respondents (42.0%) had secondary education, with 31.8% having tertiary education and 26.1% completing only primary education. Most respondents were traders (38.6%), followed by artisans (27.3%) and farmers (25.0%). The income distribution showed that 51.1% earned below ₦50,000 monthly, while 48.9% earned above ₦50,000. Overall, the participants were predominantly women aged 25–34 years, married, with secondary education, and primarily engaged in trading. Slightly over half earned below ₦50,000 monthly, reflecting a diverse socioeconomic background.

Objectives 1: To assess the level of knowledge among women of childbearing age in Okofia Community regarding pregnancy-induced hypertension, its causes, symptoms, and complications.

Table 2: The level of knowledge among women of childbearing age in Okofia Community regarding pregnancy-induced hypertension, its causes, symptoms, and complications.

Knowledge	Variables	Frequency	Percentage
Have you ever heard of PIH	Yes	61	69.3%
	No	27	30.7%
If yes, where did you first learn PIH	School	24	26.8%
	Healthcare provider	26	29.0%
	Family/friend	18	20.3%
	Media(TV, radio, social media)	21	23.9%
What is pregnancy induced Hypertension	High blood pressure during pregnancy	59	67.0%
	Swelling in the leg	12	13.6%
	Protein in urine	7	8.0%
	None of the above	5	5.7%
	I don't know	5	5.7%
Common causes of PIH	First time pregnancy	20	23.1%
	Family history of hypertension	30	33.9%
	Obesity	15	17.2%
	Poor diet	10	11.3%
	Age (over 35years)	11	12.4%
	I don't know	2	2.2%
Symptoms of pregnancy induced Hypertension	Swelling of hands and face	20	22.3%
	High blood pressure	38	43.3%
	Severe blindness	16	18.5%
	Blurry vision	10	11.5%
	I don't know	4	4.5%
Complications that arise from untreated PIH	Premature birth	20	23.2%

	Eclampsia (seizures)	32	36.1%
	Stroke	11	12.3%
	Death of the mother or child	20	23.2%
	I don't know	5	5.2%
Most common method of diagnosing PIH	Urine test	26	29.6%
	Blood pressure measurement	47	53.4%
	Blood test	7	8.0%
	Physical examination	7	8.0%
	I don't know	1	1.1%
Risk factors for developing PIH	Multiple pregnancies (twin, triplets)	17	19.7%
	History of high blood pressure	38	43.0%
	Previous preclampsia or PIH	19	21.1%
	Younger than 20 years old	9	9.9%
	I don't know	6	6.3%
Commonly recommended treatment for PIH	Bed rest	18	19.9%
	Medication (e.g., antihypertensive drugs)	41	47.1%
	Frequent monitoring of blood pressure	25	27.9%
	I don’t know	4	5.1%
Life style changes recommended to reduce the risk of PIH	Yes	60	68.2%
	No	9	10.2%
	I don’t know	19	21.6%

Table 2 presents the participants kowledge of Pregnancy-Induced Hypertension (PIH). A majority of participants (69.3%) had heard of PIH, with healthcare providers being the most common source of information (29.0%). About 67.0% correctly identified PIH as high blood pressure during pregnancy. Family history of hypertension (33.9%) and first-time pregnancy (23.1%) were the most recognized causes. High blood pressure (43.3%) was identified as a primary symptom, and eclampsia (36.1%) was noted as the most common complication. Blood pressure measurement (53.4%) was the most acknowledged diagnostic method. Medication (47.1%) and lifestyle changes (68.2%) were widely recognized as treatment and prevention methods, respectively.

Objectives 2: To determine the awareness of pregnancy-induced hypertension among women in the community.

Table 3: Assessing the awareness of pregnancy-induced hypertension among women in the community.

Awareness	Variables	Frequency	Percentage
Have you ever discussed pregnancy induced hypertension with a healthcare provide	Yes	62	70.5%
	No	26	29.5%
If yes, did the healthcare provider explain the causes, symptoms, and complications of pregnancy induced hypertension	Yes	60	68.2%
	No	27	30.7%
	I don't know	1	1.1%
How often do you attend antenatal care during pregnancy?	Regularly (at least once a month)	34	38.6%
	Occasionally (only when I feel unwell)	26	29.5%
	Rarely	13	14.8%
	Never	15	17.0%
What factors influence your decision to seek antenatal care?	Availability of healthcare facilities	25	28.6%
	Financial constraints		
	28	32.1%	
	Accessibility (distance to healthcare centers)	14	15.7%
	Lack of awareness about the importance of antenatal care	13	15.0%
	Cultural beliefs	8	8.6%
How do you feel about seeking healthcare when experiencing symptoms?	I seek healthcare immediately	29	33.0%
	I wait for a while before seeking healthcare	23	26.1%
	I do not seek healthcare for these symptoms	20	22.7%
	I am not sure what to do	16	18.2%
How well does the healthcare system in your community address the issue of PIH	Very well	11	12.5%
	Adequately	39	44.3%
	Poorly	28	31.8%
	I don't know	10	11.4%
Do you believe that pregnancy induced hypertension can be prevented	Yes	49	55.7%
	No	23	26.1%
	Don't know	16	18.2%
If you were diagnosed with pregnancy induced hypertension, would you seek medical he	Yes	42	47.7%
	No	27	30.7%
	Don't know	19	21.6%
What are some challenges you face when trying to access maternal healthcare services for PIH	Financial constraints	25	30.3%
	Lack of healthcare facilities	28	20.7%
	Lack of awareness about the importance of pregnancy induced hypertension care	14	18.7%
	Cultural practices or beliefs	13	9.1%
	Inadequate healthcare personnel	8	10.1%
	Distance to healthcare facilities	88	11.1%

Table 3 presents the awareness of the participants of PIH. Most respondents (70.5%) reported discussing PIH with a healthcare provider, and 68.2% affirmed that providers explained its causes, symptoms, and complications. Regular antenatal attendance was reported by 38.6%, while 17.0% never attended.

Financial constraints (32.1%) and availability of healthcare facilities (28.6%) influenced antenatal care decisions. Only 33.0% sought healthcare immediately upon noticing symptoms, and 44.3% rated the healthcare system's response to PIH as adequate. Furthermore, 55.7% believed PIH could be prevented, but challenges such as financial constraints (30.3%) and lack of awareness (18.7%) were prevalent.

Overall, awareness of PIH was generally high, with most participants acknowledging its importance and discussing it with healthcare providers. However, financial constraints and healthcare accessibility posed significant barriers.

Objectives 3: To determine the influence of sociodemographic factors (such as age, education, and socioeconomic status) on the level of knowledge and awareness of pregnancy-induced hypertension.

Table 4: Assessing the influence of sociodemographic factors (such as age, education, and socioeconomic status) on the level of knowledge

Have you ever heard of Pregnancy-Induced Hypertension						
			Yes	No	x^2	P-value
Age	15–24	N	10	4		
		%	71.4%	28.6%		
	25–34	N	24	6		
		%	80.0%	20.0%		
	35–44	N	15	9	3.068	0.385
		%	62.5%	37.5%		
	45–above					
	N	12	8			
		%	60.0%	40.0%		
Level of Education	Primary School	N	17	6		
		%	74%	26%		
	Secondary School	N	27	10	1.435	0.515
		%	73%	27%		
	Tertiary Education	N	17	11		
		%	61%	39%		
Income	Above ₦50,000	N	32	11		
		%	74%	26%	1.029	0.311
	Below ₦50,000	N	29	16		
		%	64%	36%		

Table 4 shows the influence of Sociodemographic Factors on Knowledge of PIH. The relationship between knowledge of PIH and sociodemographic factors (age, education, and income) was not statistically significant ($p > 0.05$). Participants aged 25–34 years exhibited the highest knowledge level (80.0%), followed by those aged 15–24 years (71.4%). Those with primary education (74%) and higher income (above ₦50,000) showed slightly better knowledge levels. Hence, sociodemographic factors did not significantly influence knowledge of PIH, although younger participants, those with primary education, and higher-income earners showed marginally better knowledge.

Table 5: Assessing the influence of sociodemographic factors (such as age, education, and socioeconomic status) on the awareness of pregnancy-induced hypertension.

Discussed pregnancy induced hypertension with a healthcare provider						
			Yes	**No**	**x^2**	**P-value**
Age	**15–24**	N	6	8		
		%	43%	57%		
	25–34	N	22	8		
		%	73%	27%		
	35–44	N	18	6	5.760	0.121
		%	75%	25%		
	45–above	N	16	4		
		%	80%	20%		
Highest Level of Education	**Primary School**	N	17	6		
		%	74%	26%		
	Secondary School	N	27	10	0.757	0.727
		%	73%	27%		
	Tertiary Education	N	18	10		
		%	64%	36%		
Income	Above ₦50,000	N	31	12		
		%	72%	28%	0.108	0.817
	Below ₦50,000	N	31	14		
		%	69%	31%		

Table 5 presents the influence of Sociodemographic Factors on Awareness of PIH. The association between awareness of PIH and sociodemographic factors (age, education, and income) was also not statistically significant ($p > 0.05$). Women aged 45 years and above demonstrated the highest awareness levels (80%), and primary education levels were slightly associated with greater awareness (74%). Income levels did not substantially affect awareness. Overall, awareness of PIH was not significantly impacted by sociodemographic factors, though older participants and those with primary education exhibited slightly higher awareness levels.

DISCUSSION

Discussion of findings will be done in line with the objectives of the study: Objective 1: To assess the level of knowledge among women of childbearing age in Okofia community regarding pregnancy-induced hypertension; its causes, symptoms, and complications.

Findings from the study showed that 69.3% of the participants had heard about pregnancy-induced hypertension (PIH). However, when assessing specific knowledge areas, only 67.0% correctly identified PIH as high blood pressure during pregnancy, and fewer participants could correctly identify its symptoms and complications. For instance, 43.3% recognized high blood pressure as a symptom, while only 36.1% linked PIH with eclampsia as a major complication.

Although a moderate level of knowledge was demonstrated overall, some misconceptions were still evident. This suggests that while basic awareness exists, comprehensive knowledge regarding causes, symptoms, diagnostic methods, and complications is still lacking among some women in Okofia Community. These findings are consistent with the study of Peter and Okafor [16], who reported high level of knowledge of Pregnancy induced hypertension among pregnant women in South Africa. This is not in agreement with the findings of Agbeno et. al. [17] in their study on the knowledge of hypertensive disorders of pregnancy among pregnant women attending antenatal clinic at a tertiary hospital in Ghana.

Objective 2: To determine the awareness of pregnancy-induced hypertension among women in Okofiacommunity.

The study revealed that 70.5% of respondents had discussed PIH with a healthcare provider, and 68.2% stated that the healthcare provider explained the causes, symptoms, and complications of PIH. Despite this, only 38.6% attended antenatal care regularly, while 17.0% never attended. Many women cited financial constraints (32.1%) and availability of healthcare facilities (28.6%) as barriers to accessing maternal care. Although a large proportion demonstrated good awareness, healthcare-seeking behavior was still suboptimal. Some women delayed seeking care until they felt unwell, increasing their risk of complications. This implies that awareness alone is not sufficient unless coupled with accessible healthcare and supportive socio-economic conditions.

This finding aligns with the findings of Soni et al. [18] where more than average awareness and positive of pregnant women towards hypertension was noticedand is contrary to the findings of Ojukwu et al.[19] in their study on knowledge and awareness of pregnancy-related hypertension and utilization of exercises as its preventive strategies in Enugu state, Nigeria in which they discovered poor awareness of pregnancy-induced hypertension (PIH).

Objective 3: To determine the sociodemographic factors (such as age, education, and socioeconomic status) that affect/influence the level of knowledge and awareness of pregnancy-induced hypertension.

Analysis showed that there was no statistically significant relationship between knowledge or awareness of PIH and sociodemographic factors such as age, education level, and income ($p > 0.05$). However, descriptively, women aged 25–34 years, those with primary education, and those earning above ₦50,000 monthly exhibited slightly higher knowledge and awareness levels. These findings suggest that while educational level and income may influence knowledge to some extent, other factors like cultural beliefs, healthcare access, and personal experiences might also play significant roles. This finding disagrees with the findings ofAdeloye, Ogunsile and Arogba [20]who reported that all the socio-demographic variables tested jointly contributed to the pregnant women's knowledge.

Conclusion

Although the majority of women of childbearing age in Okofia Community have heard of Pregnancy Induced Hypertension and demonstrated moderate knowledge of Pregnancy Induced Hypertension, significant gaps still exist. Awareness does not necessarily translate into preventive healthcare practices, largely due to financial barriers and limited access to maternal healthcare services. Furthermore, sociodemographic factors did not significantly predict knowledge or awareness levels, indicating that broader systemic and cultural factors may be at play.

RECOMMENDATION

The findings highlight the need for targeted health campaigns to close up the gap between knowledge and practice, ensuring timely medical intervention for hypertensive disorders during pregnancy in order to reducing maternal and fetal death.

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CONFLICTS OF INTEREST

The authors of this study have no competing interests.

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