

# Evaluating Intellectual Capacity of Women Attending Antenatal Care on Common Complications of Pregnancy: A Clinical-Based Study of Preeclampsia and Eclampsia

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## ABSTRACT

**Background and Aim:** To assess the intellectual capacity of pregnant women attending antenatal care regarding common complications of pregnancy (preeclampsia and eclampsia); with the goal of preventing these complications through enhanced knowledge. **Methods:** This clinical-based descriptive cross-sectional study involved 157 volunteered pregnant women attending antenatal. A simple random-sampling technique was utilized to select participants. Data was collected using a self-structured questionnaire designed in accordance to the study objectives. Statistical analysis was conducted using SPSS (v25). **Results:** Among the participants, 92.4% were married, 71.3% had secondary education and greater percentage (56.1%) had 3 deliveries. Greater proportion 80(50.9%) had no knowledge, 39(24.8%) had poor knowledge, 20(12.7%) had fair knowledge while 18(11.6%) had good knowledge of the causes of preeclampsia and eclampsia. 86(55.8%) had no knowledge, 33(21.0%), had poor knowledge, 24(15.3%) had fair knowledge while 24(15.3%) had good knowledge of the signs and symptoms of preeclampsia and eclampsia. 96(61.1%) had no knowledge, 18(11.5%) had poor knowledge, 33(21.0%) had fair knowledge while 10(6.40%) had good knowledge of the preventive measures of preeclampsia and eclampsia. **Conclusion:** Low intellectual capacity regarding preeclampsia and eclampsia among the pregnant women was observed. Consequently, necessitates sensitization programs aimed at enhancing knowledge and mitigating the occurrence of these pregnancy-related complications.

**Keywords:** Eclampsia, Intellectual capacity, Knowledge, Preeclampsia, Pregnancy complication.

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**Received:** 05-01-2024;

**Revised:** 21-02-2024;

**Accepted:** 16-03-2024.

## INTRODUCTION

Preeclampsia and eclampsia represent significant health concerns both in Nigeria and worldwide, with an estimated 62,000 to 77,000 maternal deaths and 500,000 perinatal deaths attributed to these pregnancy complications.<sup>[1]</sup> Preeclampsia typically arises after 20 weeks of pregnancy and is characterized by hypertension and proteinuria, indicating kidney damage.<sup>[2]</sup> It can lead to severe complications affecting the heart and other organs.<sup>[3]</sup> Risk factors for preeclampsia include a family history of the condition, carrying multiple fetuses, obesity, a history of hypertension, kidney disease, or diabetes, autoimmune disorders (such as lupus) and first pregnancies.<sup>[4]</sup> Signs and symptoms of preeclampsia include edema, dyspnea, changes in vision, headaches and abdominal pain.<sup>[5]</sup> Prevention strategies for preeclampsia involve maintaining a healthy diet, controlling blood pressure and blood

sugar, weight management, adequate sleep and regular exercise.<sup>[6]</sup> Regular blood pressure monitoring, urine tests, blood tests for decreased platelet count, kidney function tests, liver function tests and ultrasound monitoring can be used in clinical evaluation of preeclampsia.<sup>[7]</sup> Delivery of the baby can prevent the progression of preeclampsia.<sup>[4]</sup>

Eclampsia, a pregnancy complication stemming from preeclampsia, is characterized by seizures.<sup>[8]</sup> Its occurrence is influenced by various factors such as a family history of preeclampsia or eclampsia, poor dietary habits or obesity, first pregnancy, age between 16-50, multiple pregnancies and underlying conditions like diabetes, hypertension, or kidney disease.<sup>[9]</sup> Before the onset of seizures, individuals may experience signs and symptoms including difficulty urinating and breathing, vision abnormalities, edema (in the hands, face and ankles), nausea and vomiting.<sup>[10]</sup> The evaluation of eclampsia typically involves blood tests, creatinine tests, urine analysis and monitoring of blood pressure.<sup>[7]</sup> Recovery from eclampsia often occurs following delivery.<sup>[11]</sup> Proper medical attention, maintenance of a healthy lifestyle and regular attendance at



DOI: 10.5530/ijcep.2024.11.1.4

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antenatal appointments are key measures to prevent the risk of eclampsia.<sup>[8]</sup>

Health-related intellectual capacity influences an individual's ability to avoid, prevent, combat and curtail the prevalence of pathophysiological phenomenon;<sup>[12]</sup> this study addresses how health-related intellectual capacity influences an individual's ability to prevent and manage physiological complications, particularly in the context of pregnancy complications like preeclampsia and eclampsia. This understanding can guide the development of sensitization programs to reduce the occurrence of these complications. Specifically, the study focuses on assessing the intellectual capacity of pregnant women attending antenatal care regarding common pregnancy complications such as preeclampsia and eclampsia.

## MATERIALS AND METHODS

### Research Design and Area

This study was a clinical-based descriptive cross-sectional approach, where data were collected from individuals within a population to address specific research inquiries. The study was conducted at the Rivers State College of Health Demonstration Clinic in Port Harcourt. Consent was obtained from the respondents ensuring confidentiality and anonymity. Participants were free to withdraw without penalty.

### Population of the Study

The study included 260 pregnant women attending antenatal visits at the Rivers State College of Health Science Demonstration Clinic during the duration of the study. Inclusion criteria comprised pregnant women attending the antenatal clinic who provided consent to participate. Exclusion criteria encompassed pregnant women who were medically unfit to participate or did not provide consent.

### Sample and Sampling Technique

A sample of 157 pregnant women was chosen using the simple random sampling technique. Women attending the antenatal clinic were randomly selected until the sample size of 157 was reached, as determined using Taro Yamané's formula.

### Determination of sample size

Taro Yamané's formula:

$$n = N / 1 + (e)^2$$

Where n=Sample Size,

N=Target population,

e=Level of significance (limit of tolerable error)=0.05 (5%),

Sample size for the study will therefore be:  $n = 260 / 1 + 260 (0.0025) = 157.5757$ .

### Instrument for Data Collection

The instrument utilized for data collection was a structured questionnaire designed in accordance with the study's objectives and research inquiries. The questionnaire comprised two sections (A and B). Section A focused on gathering socio-demographic information from the respondents, while section B aimed to assess the respondents' knowledge regarding the causes, signs, symptoms and preventive measures related to the conditions under investigation.

### Validity and Reliability of the Instrument

The validity and reliability of the instrument were ensured through several steps. Initially, the questionnaire underwent assessment and modifications by the authors before final copies were produced. Subsequently, the questionnaire was piloted on a sample of 20 students who were not part of the study area. The Cronbach Alpha method, as outlined by Park,<sup>[13]</sup> was utilized to assess internal consistency, resulting in a reliability index of 0.80, which established the instrument's reliability for the study.

### Statistical Analysis of Data

The data collected was analyzed using SPSS version 25. The frequency and percentage distribution was calculated. p value <0.05 was considered to be statistically significant.

## RESULTS

### Socio-demographics

Among the 157 respondents, 10 (6.37%) reported no prior deliveries, 14 (8.92%) had one delivery, 19 (12.1%) had two deliveries, 88 (56.1%) had three deliveries, 20 (12.7%) had four deliveries and 6 (3.82%) had more than four deliveries. Regarding pregnancies, 8 (5.10%) had one pregnancy, 12 (7.64%) had two pregnancies, 96 (61.1%) had three pregnancies, 27 (17.2%) had four pregnancies and 14 (8.92%) had more than four pregnancies. Furthermore, 12 (7.64%) were single, while 145 (92.4%) were married. In terms of education, 3 (1.91%) had primary education, 112 (71.3%) had secondary education and 42 (26.8%) had tertiary education. Occupation-wise, 53 (33.8%) were civil servants, 62 (39.5%) were in business, 30 (19.1%) were housewives and 12 (7.64%) were students (Table 1).

### Assessment of knowledge regarding the causes of preeclampsia and eclampsia among pregnant women

Tables 2 and 3 present the knowledge levels regarding the causes of preeclampsia and eclampsia; among pregnant women. Among the 157 respondents studied, 80 (50.9%) had no knowledge, 39 (24.8%) had poor knowledge, 20 (12.7%) had fair knowledge and 18 (11.6%) had good knowledge of the causes of preeclampsia and eclampsia (Table 3).

### Assessment of knowledge regarding the signs and Symptoms of preeclampsia and eclampsia among pregnant women

Tables 4 and 5 present the knowledge levels of pregnant women regarding the signs and symptoms of preeclampsia and eclampsia; Among the 157 respondents studied, 86 (54.8%) had no knowledge, 33 (21.0%) had poor knowledge, 24 (15.3%) had fair knowledge and 14 (8.90.%) had good knowledge of the signs and symptoms of preeclampsia and eclampsia (Table 5).

### Assessment of knowledge regarding the preventive measures of preeclampsia and eclampsia among pregnant women

Tables 6 and 7 display the knowledge levels concerning the preventive measures for preeclampsia and eclampsia. Among the 157 respondents studied, 96 (61.1%) had no knowledge, 18 (11.5%) had poor knowledge, 33 (21.0%) had fair knowledge and 10 (6.40%) had good knowledge of the preventive measures for pre-eclampsia and eclampsia (Table 7).

## DISCUSSION

Preeclampsia and eclampsia are indeed critical pregnancy-related complications that pose risks to both the mother and baby.<sup>[14]</sup> Having proper knowledge and awareness of overall health, including these conditions, is essential.<sup>[15]</sup> Studies have highlighted the adverse effects of preeclampsia and eclampsia on both mother and fetus, including preterm birth, placental abruption, loss of consciousness and fetal and maternal death. These complications can arise due to poor knowledge, as noted in this study which is in correspondence with reports of Parsa.<sup>[16]</sup>

The study (Tables 2 and 3) revealed a high prevalence of low intellectual capacity among pregnant women regarding the complications of pregnancy, especially regarding the causes of preeclampsia and eclampsia. This finding corresponds with studies,<sup>[17]</sup> which noted that pregnant women often lack good knowledge of these conditions' causes and risk factors. This lack of knowledge may contribute to maternal and perinatal morbidity and mortality globally, as it affects individuals' ability to prevent and manage these complications effectively.

**Table 1: Socio-demographic Characteristics of the Respondents (n=157).**

Variable	Category	Frequency	Percentage (%)
Parity	0	10	6.37
	1	14	8.92
	2	19	12.1
	3	88	56.1
	4	20	12.7
	Above 4	6	3.82
	Total	157	100
Gravidity	1	8	5.10
	2	12	7.64
	3	96	61.1
	4	27	17.2
	Above 4	14	8.92
	Total	157	100
Marital status	Single	12	7.64
	Married	145	92.4
	Total	157	100
Educational level	Primary	3	1.91
	Secondary	112	71.3
	Tertiary	42	26.8
	Total	157	100
Occupational level	Civil servant	53	33.8
	Business	62	39.5
	Housewife	30	19.1
	Students	12	7.64
	Total	157	100

**Table 2: Knowledge of the causes of preeclampsia and eclampsia among pregnant women (n=157).**

Sl. No.	Items	Frequency	Percentage (%)
1	Have you ever heard about preeclampsia?		
	Yes	45	28.7
	No	112	71.3
	Total	157	100
2	Preeclampsia and eclampsia can be caused by insufficient blood flow to the uterus?		
	Yes	32	20.4
	No	125	79.6
	Total	157	100
3	Preeclampsia and eclampsia can be caused by damage to the system that supplies blood to the heart and other vital parts of the body?		
	Yes	36	22.9
	No	121	77.1
	Total	157	100
4	Preeclampsia and eclampsia can be genetic?		
	Yes	42	26.8
	No	115	73.2
	Total	157	100
5	An existing chronic hypertension can cause preeclampsia and eclampsia?		
	Yes	38	24.2
	No	119	75.8
	Total	157	100
6	Multiple gestation increases the risk for preeclampsia and eclampsia?		
	Yes	50	31.8
	No	107	68.2
	Total	157	100
7	Having pregnancies spaced less than two years apart or more than ten years apart increases the risk of preeclampsia and eclampsia?		
	Yes	40	25.5
	No	117	74.5
	Total	157	100

**Table 3: Categorization of the knowledge of pregnant women on the causes of preeclampsia and eclampsia (n=157).**

Score on the items	Variable	Frequency	Percentage (%)
0	No knowledge	80	50.9
1-14	Poor knowledge	39	24.8
15-19	Fair knowledge	20	12.7
20-28	Good knowledge	18	11.6

**Table 4: Knowledge of pregnant women on the signs and symptoms of preeclampsia and eclampsia (n=157).**

Sl. No.	Items	Yes (%)	No (%)
1	High blood pressure	36 (22.9)	121 (77.1)
2	Severe headache or pressure in the head (frontal).	38 (24.2)	119 (75.8)
3	Visual disturbances such as blurred vision.	42 (26.8)	115 (73.2)
4	Oedema (swollen face, abdomen and feet or legs).	50 (31.8)	107 (68.2)
5	Excessive talk	45 (28.7)	112 (79.6)
6	Fast or difficulty in breathing	32 (20.4)	125 (79.6)
7	Nausea	36 (22.9)	121 (77.1)
8	Vomiting	38 (24.2)	119 (75.8)
9	Epigastric pain (heart burn)	45 (28.7)	112 (71.3)
10	Vaginal bleeding	42 (26.8)	115 (73.2)
11	Seizure is one of the signs of eclampsia in patient with pre-eclampsia.	32 (20.4)	125 (79.6)
12	Muscle pain is a symptom of eclampsia in a patient with pre-eclampsia.	45 (28.7)	112 (71.3)

**Table 5: Categorization knowledge level of pregnant women about the signs and symptoms of preeclampsia and eclampsia (n=157).**

Items	Variable	Frequency	Percentage (%)
0	No knowledge	86	54.8
1-12	Poor knowledge	33	21.0
13-17	Fair knowledge	24	15.3
18-24	Good knowledge	14	8.90

**Table 6: Knowledge on the preventive measures for preeclampsia and eclampsia among pregnant women (n=157).**

Sl. No.	Items	Yes (%)	No (%)
1	Adequate rest	45 (28.7)	112 (71.3)
2	Lying on the left side to take the weight of the baby off the major blood vessels.	32 (20.4)	125 (79.6)
3	Adequate fluid intake	36 (22.9)	121 (77.1)
4	Keeping to antenatal appointment.	42 (26.8)	115 (73.2)
5	Less than salt intake	32 (20.4)	125 (79.6)
6	Dietary supplementation of Vitamin D and calcium.	36 (22.9)	121 (77.1)
7	Adhering to medication regimen.	38 (24.2)	119(75.8)
8	Antenatal exercises	42(26.8)	115(73.2)
9	Treatment of prior hypertension.	42(26.8)	115(73.2)
10	Weight control	50(31.8)	107(68.2)

**Table 7: Categorization knowledge level of pregnant women about the preventive measures for preeclampsia and eclampsia (n=157).**

Items	Variable	Frequency	Percentage (%)
0	No knowledge	96	61.1
1-10	Poor knowledge	18	11.5
11-15	Fair knowledge	33	21.0
16-20	Good knowledge	10	6.40

Results from the study indicate that a significant proportion of pregnant women lacked knowledge of the signs and symptoms of preeclampsia and eclampsia (Tables 4 and 5). This finding is consistent with a study by Savage and Hoho,<sup>[18]</sup> which similarly reported that a majority of antenatal mothers lack adequate knowledge of these conditions' signs and symptoms. The user underscores the importance of substantial knowledge of these complications' signs and symptoms in reducing the mortality rate of both mother and child. They also point out evidence suggesting that understanding a disorder positively influences its prevention, control and management, as patients' knowledge about a disease can improve treatment compliance and mitigate associated complications.<sup>[17]</sup>

The study indicated that a notable proportion of pregnant women were not knowledgeable about the preventive measures for pregnancy complications like preeclampsia and eclampsia (Table 6). This result corresponds to the findings of Savage and Hoho,<sup>[18]</sup> which revealed that a majority of pregnant women have limited or no knowledge of ways to prevent these complications, thus contributing to increased mortality rates worldwide.

## CONCLUSION

The study demonstrated a heightened prevalence of diminished intellectual capacity regarding the causation, clinical manifestations, symptoms and preventative measures associated with preeclampsia and eclampsia among pregnant women. Based on the findings of poor intellectual capacity regarding preeclampsia and eclampsia among participants, along with their health implications and reported incidence among pregnant women, it is recommended to implement sensitization programs. These programs aim to enhance knowledge and reduce the occurrence of these pregnancy complications. Physiologists and other health-related workers should be empowered by government agencies and NGOs, deployed to health facilities and communities for awareness and sensitization tours. Furthermore, medical professionals should include preeclampsia and eclampsia as part of the complications to monitor during antenatal care. They should provide guidance on causes, signs, symptoms and preventive measures to pregnant women attending antenatal appointments.

## CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

## ABBREVIATION

Nil.

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**Cite this article:** Ajuzie GC, Onwuka OM, Okerulu AL. Evaluating Intellectual Capacity of Women Attending Antenatal Care on Common Complications of Pregnancy: A Clinical-Based Study of Preeclampsia and Eclampsia. *Int J Clin Exp Physiol.* 2024;11(1):26-31.