Knowledge, Preventive Measures,and Barriers to Prevention of Preeclampsia among Pregnant Women Attending Antenatal Clinic in Selected Health Facilities in Ibadan, Oyo State

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Introduction

American College of Obstetrics and Gynaecology (ACOG) cited in Meazaw et al (2020) defined preeclampsia as the presence of hypertention and proteinuria greater than or equal to 140mmHg/90mmHg or in the absence of proteinuria, new onset hypertention or new onset of any of the following; thrombocytopenia, renal insufficiency, impaired liver function, pulmonary oedema, and unexplained new onset of headache that is unresponsive to medication or visual symptoms. It occurs in pregnancy and post-partum period causing complications to both mother and foetus (Eze et al, 2018). World Health Organization (WHO), cited in Yushida and Zahara (2020) estimated that 70,000 maternal deaths worldwide occur due to preeclampsia. It was also estimated to cause 50,000 to 60,000 maternal deaths and 500,000 infant deaths yearly (Joshi, et al, 2020). In Africa, up to 18% of deliveries are complicated by severe preeclampsia and eclampsia. (Adekanmi et al, 2019). Despite being a preventable cause of maternal mortality, preeclampsia continues to contribute disproportionately to poor pregnancy outcomes in Nigeria, among many African and under-developed countries. In Ibadan, Oyo State Nigeria, study conducted by Okhae and Arulogun (2017) at Adeoyo Maternity Teaching Hospital, Yemetu, being one of the major hospitals preferred by the pregnant women identifies a below average in level of awareness but good knowledge among those who are aware about preeclampsia.

Pregnancy is the term used to describe the period in which a foetus or foetuses develops inside a woman's uterus usually lasting about 40 weeks from the last menstrual period to delivery. Therefore, pregnant women are women who are pregnant. Pregnancy is considered as a natural part of life by many Nigerians (Sripad et al, 2019). Also,

Preeclampsia is a pregnancy-specific related disorder meaning that it is only those who are pregnant that can develop preeclampsia which may extend beyond the pregnancy period to increasing the risk for cardiovascular complications in the future (Lackner, et al, 2018). Also, according to Nabulo et al (2021), pregnant women often time present late to formal health institution due to tradition and cultural beliefs, personal beliefs, influence of older and senior women's knowledge and family members.

Having knowledge of preeclampsia contribute greatly to its prevention and management, encourages compliant and prevent complications (Fondjo et al, 2019). One major challenge of preventing and or reduce incidence of preeclampsia is that pregnant women having signs and symptom of the condition report late to the health facilities and there is need to impact women with the knowledge of preeclampsia and assess their previous knowledge also (Ngouakam et al, 2021). Knowledge of preeclampsia is low among many women in countries with middle or low income like many African countries. There is 0.47% prevalence of preeclampsia and women in Buea Health District in Cameroon has inadequate knowledge of preeclampsia (Ngouakam et al, 2021). In Ghana, 88.4% pregnant women did not have adequate knowledge of preeclampsia, 11.6% has adequate knowledge out of which only 2.3% has high knowledge of preeclampsia (Fondjo et al, 2019), compare to 0.4% in the developed countries (Machano & Joho, 2020). In Nigeria, study by Makinde and Akinboye, (2021) reveals that 61.7% women did not hear about preeclampsia and many pregnant women attending primary and secondary health facilities do not have knowledge of preeclampsia.

Poor outcome of pregnancy is imminent without adequate knowledge and awareness of pregnant women, and one of the ways to do so is through educational intervention (Parsa et al, 2019). Furthermore, when there is adequate knowledge about a disease condition, there would be compliance with the management which contribute to the prevention, control and complication prevention. When there is awareness, there would be early presentation to the hospital, prompt medical attention, and less adverse outcome (Fondjo et al, 2019).

Antenatal clinic (ANC) attends to women who are pregnant. It is a place where health professionals give health care like physical examination, health screening, case management and education to pregnant women during pregnancy. Many Nigerians

considers antenatal care as unimportant overlooking danger signs and symptoms of pregnancy related complications (Sripad et al, 2019). Meanwhile patients usually affected by preeclampsia were primigravida, women with low level of education, patients who are not booked in health facilities etc (Onoh et al, 2019). According to Hamzah et al (2021), irregular antenatal visit is a risk factor in preeclampsia. Furthermore, there is need for high level of knowledge among pregnant women which is unfortunately low and it is needed for effective control and management of preeclampsia and most importantly, it is needed for compliance, prevention and prevention of complications (Fondjo et al, 2019).

ANC also serve as the primary platform for knowledge through health education. However, many patients are not booked in health facilities, including primigravida and women with low level of education, who are later affected by preeclampsia etc (Onoh et al, 2021). There is a scarcity of recent, context-specific data on the knowledge of preeclampsia among pregnant women attending ANCs in Ibadan, Oyo State. This gap in knowledge poses a continuous threat to maternal and child health. Hence this study is aimed at assessing the knowledge of preeclampsia as a menacing diseases, the knowledge of the preventive measures for this life-threatening disease, and the knowledge of the barriers faced in preventing preeclampsia among pregnant women attending antenatal clinic in selected health facilities in Ibadan, Oyo State.

Research Questions

1. What is the knowledge of preeclampsia among pregnant women?
2. What is the knowledge of the preventive measures of preeclampsia among pregnant women?
3. What is the knowledge of the barriers to the prevention of preeclampsia among pregnant women?

Hypothesis

There is no significant association between age, religion, ethnicity, education, marital status, parity and the knowledge of preeclampsia among pregnant women attending antenatal clinic in selected health facilities in Ibadan.

Methodology

The study adopted health facility-based descriptive cross-sectional design and was conducted in some selected healthcare facilities in Ibadan. Target population were pregnant women in Ibadan, studied population were pregnant women attending antenatal clinic in University College Hospital (UCH), Adeoyo Maternity Teaching Hospital (AMTH), Yemetu, and Alegongo Primary Health Center (APHC), Akobo, all in Ibadan. The health facilities were selected using purposive sampling based on being tertiary, secondary and primary health facilities respectively and target population were mainly pregnant women. 417 pregnant women were studied which was calculated using Kish-Leslie (1965) formula and attrition rate of 10% of sample size.

$$n = \frac{z^2pq}{d^2}$$

Same proportionately distributed according to average number of patient per month as follows; UCH- 150, AMTH- 217, APHC- 50.

Data was collected by the use of self-structured questionnaire in English and Yoruba languages consisting of personal data and obstetrics history, knowledge of preeclampsia, preventive measures of preeclampsia and barrier to prevention of preeclampsia among pregnant women. Data was collected by visiting the antenatal clinics on the clinic days. Face validity was done by subjecting the study to comprehensive review of related literature, instrument was checked for construct validity by checking for clarity, adequacy of contents, appropriateness and ability to elicit accurate information with respect to the research objectives, questions and hypothesis. Test-retest reliability was used. The reliability coefficient (Cronbach's Alpha) was 0.768 ensuring internal consistency of the instrument.

The study followed the ethical principles guiding human research studies. Approval to was obtained from the Oyo state Ministry of Health Ethical Committees with NREC number NHREC/OYOSHRIEC/10/11/22 and ethical committee of University College Hospital with assigned number UI/EC/23/0626. Inform consent was obtained from the respondents and confidentiality maintained, purpose and benefit of the study was explained to the participants and both verbal and written consents was obtained which was done

voluntarily without persuasion. Ethical principles were followed and human right maintained.

Questionnaire was carefully checked for proper completion with sorting, cleaning and coding of the questionnaire. Data entry was done using Statistical Package for Social Science Software (SPSS 25.0 statistical software). Quantitative data was analyzed using descriptive statistics and Chi square test with level of significant set at 5%.

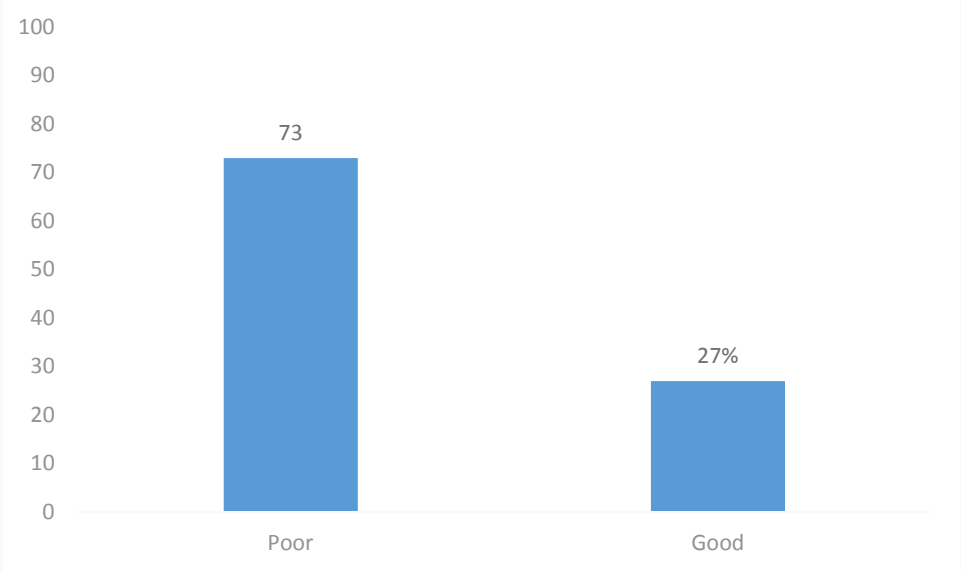
Results and Discussion of Findings

Frequency distribution of respondents' socio-demographics characteristics

Variables	N (419)	%
Age (years)		
≤24	65	15.5
25-34	280	66.8
≥35	74	17.7
Mean±SD	28.8±5.5	
Religion		
Christianity	226	53.9
Islam	188	44.9
Traditional	5	1.2
Ethnicity		
Hausa	13	3.1
Yoruba	356	85
Igbo	38	9.1
Others	12	2.9
Education		
Primary	9	2.1
Secondary	123	29.4
Graduate	243	58
Postgraduate	33	7.9
Others	11	2.6
Marital status		

Married	399	95.2
Single	19	4.5
Separated	1	0.2
Numbers of time being Pregnant		
<2	283	67.5
≥2	136	32.5

The mean age of the respondents was 28.8±5.5. Most respondents practiced Christianity, some Islam, others practiced traditional religion. Majority were Yoruba, some Igbo, others were Hausa while the rest belongs to other religion. Majority of the had a graduate certificate, secondary school education, post graduate education, primary school education, while the rest had no formal education. Most were married, a few single while one was separated. Many were pregnant at least once, others were pregnant up to two times while the rest were pregnant more than two times.



Knowledge of Preeclampsia

More than half of respondents never heard about preeclampsia. Majority of respondents did not know that preeclampsia is a hypertensive disorder, that Advanced maternal age, family history, late marriage, Obesity and Oedema are risk factors of preeclampsia. More than half of the respondents think preeclampsia can always lead to eclampsia which is

otherwise. In general, this study reveals that majority of respondents (73%) have poor knowledge of preeclampsia compare to few (27%) that have good knowledge of preeclampsia.

Respondents' knowledge of Preeclampsia

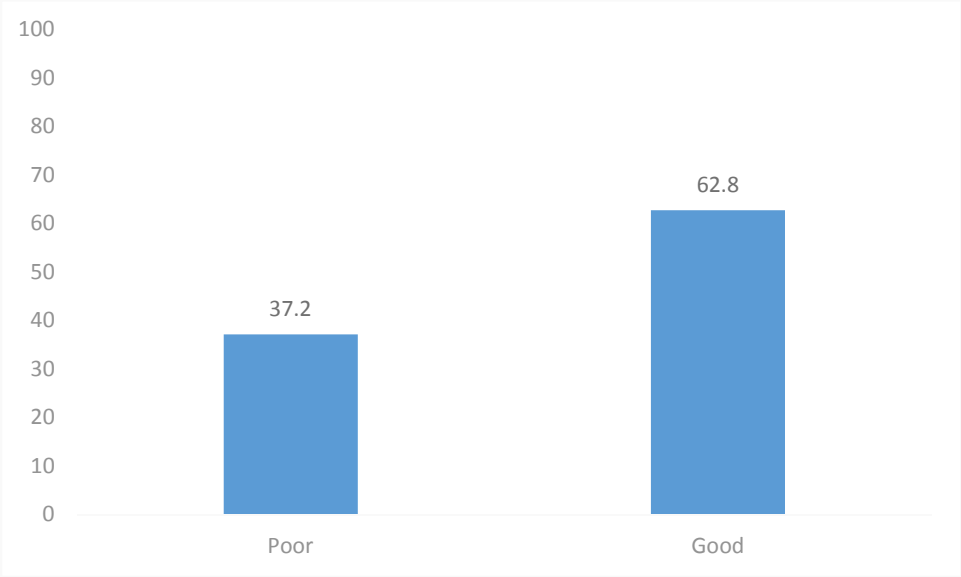
Variables	No (%)	Yes (%)
Heard about preeclampsia	232 (55.4)	187 (44.6)
Source of Information		
Antenatal clinic	300 (71.6)	119 (28.4)
Older women	392 (93.6)	27 (6.4)
Media	383 (91.4)	36 (8.6)
Religious house	410 (97.9)	9 (2.1)
When did you book your first pregnancy (weeks)		
Mean±SD	11.8±8.4	
What type of disorder is preeclampsia		
Malaria	376 (89.7)	43 (10.3)
Hypertensive	291 (69.5)	128 (30.5)
Blood bone	396 (94.5)	23 (5.5)
Brain problem	404 (96.4)	15 (3.6)
Preeclampsia always leads to eclampsia	138 (32.9)	281 (67.1)
Preeclampsia can be managed at home	339 (80.9)	80 (19.1)
Early clinic and regular visits can prevent complications and death from preeclampsia	32 (7.6)	387 (92.4)
Uncontrolled preeclampsia can affect and kill the foetus and the pregnant woman	30 (7.2)	389 (92.8)
Preeclampsia makes a baby bigger than normal	310 (74)	109 (26)
Preeclampsia is spiritual and not medical	375 (89.5)	44 (10.5)

In many Africa countries, knowledge of preeclampsia is low among many women (Ngouakam et al, 2021). In Buea Health District in Cameroun there is inadequate knowledge of preeclampsia among women (Ngouakam et al, 2021). Similarly, in Ghana,

88.4% pregnant women did not have adequate knowledge of preeclampsia (Fondjo et al, 2019). In Nigeria, study by Mekie et al (2022), Okhae and Arulogun (2017) has similar result of inadequate knowledge of preeclampsia among pregnant women. In this study close to half of the respondents (44.6%) heard about preeclampsia while majority (55.4%) did not hear about it, with the source of information from those who heard being majorly antenatal clinic, some from older women and others from religious house. This is similar to study by Makinde and Akinboye, (2021) which reveals that 61.7% pregnant women did not hear about preeclampsia. Also Study by Mekie et al (2022), Okhae and Arulogun (2017) has similar result of inadequate knowledge among pregnant women.

Preventive Measures of Preeclampsia Among Pregnant Women

Variables	No (%)	Yes (%)
Booking early for antenatal can prevent preeclampsia	44 (10.5)	375 (89.5)
Visiting the spiritualist can prevent preeclampsia	353 (84.2)	66 (15.8)
Knowing the family history can prevent preeclampsia	118 (28.2)	301 (71.8)
Knowledge of signs and symptoms can prevent preeclampsia	58 (13.8)	361 (86.2)
Self-medication can prevent preeclampsia	361 (86.2)	58 (13.8)
Regular antenatal clinic attendance can prevent preeclampsia	27 (6.4)	392 (93.6)
Screening through laboratory investigation can prevent preeclampsia	41 (9.8)	378 (90.2)
Use of prescribed medication when due can prevent preeclampsia	30 (7.2)	389 (92.8)
Drinking only a small amount of water can prevent preeclampsia	371 (88.5)	48 (11.5)
Educating the community about preeclampsia can prevent preeclampsia	32 (7.6)	387 (92.4)
Early detection leads to early management	19 (4.5)	400 (95.5)
Blood pressure monitoring regularly throughout pregnancy prevents preeclampsia	22 (5.3)	397 (94.7)
Drug and equipment availability can prevent preeclampsia	20 (4.8)	399 (95.2)



Preventive Measures oF Preeclampsia

Sharma, (2020) highlights screening through personal and family history and early detection by teaching women signs and symptoms of preeclampsia, monitoring of blood pressure as preventive measures. Investigations should also be done as preventive measures (Lamonica, 2022). Quality antenatal care, use of appropriate medications, creating awareness in the community (Kirk, Karen, Ishita and Chattopadhyay, 2016). Meanwhile, in this study, the majority of the respondents think booking early for antenatal can help to prevent preeclampsia, some do not believe visiting the spiritualist can help to prevent pre-eclampsia, many thinks knowing the family history can prevent preeclampsia, most think knowing the signs and symptoms of pre-eclampsia can help to prevent it, others think attending antenatal clinic regularly and screening through laboratory investigation can prevent pre-eclampsia. The majority of the respondents believe that the use of prescribed medication as at when due, educating those in the community about preeclampsia and monitoring of blood pressure regularly can prevent preeclampsia. Almost all respondents think the availability of drugs and equipment in the clinic can prevent preeclampsia all of which are in line with the preventive measure of preeclampsia.

Barriers to Prevention of Preeclampsia among Pregnant Women

Variables	No (%)	Yes (%)
Lack of knowledge about preeclampsia	65 (15.5)	354 (84.5)
Inability to access health services during pregnancy	57 (13.6)	362 (86.4)
Men deciding on antenatal booking	149 (35.6)	270 (64.4)
Early antenatal booking	274 (65.4)	145 (34.6)
Essential information not being given to men on the prevention of preeclampsia and obstetric emergency	132 (31.5)	287 (68.5)
Delay in seeking medical attention	68 (16.2)	351 (83.8)
Being a full-time housewife	329 (78.5)	90 (21.5)
Financial constraint	99 (23.6)	320 (76.4)
Inability to recognize signs and symptoms of preeclampsia	60 (14.3)	359 (85.7)
Believing information that is not true about preeclampsia	69 (16.5)	350 (83.5)
Traditional beliefs that prevent early booking or not booking at all	72 (17.2)	347 (82.8)
Ignorance	59 (14.1)	360 (85.9)

According to Machenje et al (2022), Mekie et al (2021) and Akeju et al (2016), factors affecting adequate prevention of preeclampsia include; myths about preeclampsia, traditional beliefs, inability to access health services, ignorance, men as decision maker in family issues, delay in seeking healthcare services and financial constrain. In this study,

many respondents think that lack of knowledge about preeclampsia is a barrier. Most believe that inability to access health services during pregnancy is a barrier to pre-eclampsia. More than half don't think early booking of antenatal can be a barrier to preeclampsia. Majority thinks that delay in seeking medical attention, inability to recognize signs and symptoms of preeclampsia, believing information that is not true, traditional belief prevents early booking or not booking at all and ignorance is a barrier to preeclampsia. The result of this study shows that respondents understand the perceived barriers to prevention of preeclampsia.

Hypothesis

Association between respondents' socio-demographics and knowledge on preeclampsia

Variables	Poor (%)	Good (%)	X^2	Pvalue
Age (years)			12.78	0.002*
≤24	59 (90.8)	6 (9.2)		
25-34	193 (68.9)	87 (31.1)		
≥35	54 (73)	20 (27)		
Religion			4.01	0.135
Christianity	156 (69)	70 (31)		
Islam	146 (77.7)	42 (22.3)		
Traditional	4 (80)	1 (20)		
Ethnicity			8.66	0.034*
Hausa	9 (69.2)	4 (30.8)		
Yoruba	269 (75.6)	87 (24.4)		
Igbo	21 (55.3)	17 (44.7)		
Others	7 (58.3)	5 (41.7)		
Education			27.47	0.000*
Primary	8 (88.9)	1 (11.1)		
Secondary	106 (86.2)	17 (13.8)		
Graduate	171 (70.4)	72 (29.6)		
Postgraduate	15 (45.5)	18 (54.5)		

Others	6 (54.5)	5 (45.5)		
Marital status			0.73	0.694
Married	290 (72.7)	109 (27.3)		
Single	15 (78.9)	4 (21.1)		
Separated	1 (100)	0 (0)		
Number of times being pregnant			1.57	0.24
<2	212 (74.9)	71 (25.1)		
≥2	94 (69.1)	42 (30.9)		

*Statistically significant

Association between respondents Socio-demographics and Knowledge of Preeclampsia

In this study, respondents ages were from below 24 to above 34 with the mean being 28.8, meaning that many of the respondents were youth. The proportion of good knowledge of preeclampsia is high among respondents that are between the age group of 25-34 years compared to those that are below and up to 24 years, and more than 34 years at p=0.002 which is statistically significant. The study cut across the three major tribes in Nigeria (Hausa, Igbo, Yoruba) and a few other tribes, with highest number of respondents being Yoruba, then Igbo, Hausa, followed by other tribes that are not among the mentioned as major tribes. There is however good knowledge of preeclampsia among respondents that are Igbos compared to other tribes, Hausa and Yoruba at p=0.034 which is significant and could be due to cultural values. Marital status of respondents varies from being single, married, separated or divorced which is however insignificant at p=0.694. Educational qualification of respondents varies from primary school certificate, secondary school certificate, graduate, post graduate to other forms of education. The proportion of good knowledge of preeclampsia is high among respondents who had a postgraduate level of education compared to graduate, secondary and primary at p=0.000 which is significant.

Conclusion

The socio-demographic characteristics that was studied includes age, educational qualification, ethnicity, marital status among others. The result of the study reveals that more than half pregnant women did not hear about preeclampsia, does not know the type of disorder that preeclampsia is, does not know the risk factor and symptoms of preeclampsia but knows the preventive measures and barriers to prevention of preeclampsia, hence there is need to create awareness and educate pregnant women about preeclampsia.

Recommendations

I. Creating awareness about preeclampsia should be given utmost priority by sensitising the community at large and not only the pregnant women about what preeclampsia is, the risk factors of preeclampsia, signs and symptoms of preeclampsia and the need to book early in pregnancy so that pregnant women could be screen for preeclampsia as early as possible for prompt action when necessary.

II. This study shows that many pregnant women recognises the prevention of preeclampsia. However, there is still an urgent need to intensify action in educating pregnant women, specifically during antenatal clinic, on how to prevent the disease, and how they can put what they know to action..

III. Although the result of this research shows that many pregnant women have knowledge of the barriers to preventing preeclampsia, further work is still needed to expand their knowledge. In addition, concerned governmental and non-governmental bodies should work on eradicating these barriers.

Suggestion for Further Research

This study shows that below average of respondents claims not to have heard about preeclampsia but majority know the preventive and barriers to preventive measure of preeclampsia. There is need to study what is responsible for the contrast.

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