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Nursing Intervention on Knowledge of Hypertensive Disorders Among Pregnant Women at Two Selected Hospitals in Okitipupa, Ondo State

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Abstract:

Hypertensive disorder is the third largest cause of maternal death associated with pregnancy worldwide**.** Studies have identified lack of knowledge of hypertensive disorders among pregnant women as major challenge in controlling hypertension. Therefore, the study examined the effect of nursing intervention on knowledge of hypertensive disorders among pregnant women at two selected hospitals in Okitipupa, Ondo State. The study was a quantitative research that adopted a two group quasi-experimental method (one experimental group and one control group) to assess the outcome of intervention programme. Purposive and proportional sampling techniques were used to select 96 participants for the study. Data was collected using a validated questionnaire with reliability index of 0.749. Interventional package on knowledge of hypertensive disorders in pregnancy was used for training experimental group. Data collected were coded and entered into SPSS Version 27. Descriptive and inferential statistics were used to analyse collected data at 0.05 level of significance. Findings showed that participants' knowledge of hypertensive disorders among pregnant women was low at the pre-intervention stage for both the experimental group (5.62±1.26) and the control group (6.11±1.49) while it increased significantly at the immediate post intervention for the experimental group (15.62±1.65) while the control group (6.97±1.32) remained

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almost the same. The study concluded that nurse-led intervention increased the level of knowledge of hypertensive disorders among pregnant women in the experimental group. It was recommended among others that nurses should as a matter of urgency introduce health classes on hypertensive disorders at least once a month to foster good adherence to knowledge of hypertensive disorders.

Keywords: Hypertensive Disorders, Knowledge, Nursing intervention, Pregnant Women,

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Introduction

Hypertension during pregnancy is a common medical illness affecting up to 5%–10% of pregnant women and it represents the primary cause of maternal and new-born morbidity (Muti, et al, 2015; Kintiraki, et al, 2015). Hypertensive disorder affects between 5-22 percent of pregnancies in underdeveloped nation's (Azubuike & Danjuma, 2017). Hypertension is described as a systolic blood pressure of 140 mm Hg or a diastolic blood pressure of 90 mm Hg obtained in the forearm when the patient is seated using a suitably sized cuff (Kintiraki et al., 2015). The probability of hypertension during pregnancy is extremely significant, particularly in underdeveloped nations like Nigeria. Hypertensive disorders were mainly responsible for maternal and pre-natal morbidity and mortality globally, with hypertensive disorders constituting the most common causation of maternal and prenatal morbidity and mortality (Muti et al., 2015)

High blood pressure constitutes a severe concern to maternal health during pregnancy because it produces an increase in blood vessel resistance, which can obstruct blood flow to the liver, kidneys, brain, uterus, and placenta (Oshvandi, et al, 2018; Anthony, et al, 2016). This equates to 1400 women every day and over 500,000 per year who die as a result of pregnancy-related conditions. If left untreated, high blood pressure can progress to hypertensive disorder, that constitutes a leading five causes of maternal and new born illness and death, accounting for an estimated 13% of all maternal deaths globally, or one every 12 minutes. Hypertensive disorders alter roughly 5 to 8% of pregnancies worldwide, resulting in the deaths of about 10 million women each year (Oshvandi et al., 2018). Besides the dangers to the mother, hypertensive disorder can result in poor foetal growth, still birth, small for gestational age, birth asphyxia, and perinatal mortality in the newborn (Berhe, et al, 2020). From this perspective, hypertensive disorder is a barrier for any country's future population predictions because it diminishes the country's possibilities of population growth and also predicts poor physical and mental capacity in infants who survive to adulthood.

Knowledge of a disease condition by patients suffering from a particular disease is essential for effective coping and management of that disease. Patients diagnosed of hypertension need to have adequate knowledge of hypertension for them to be able to benefit maximally from available care, maintain optimal health, prevent complications as well as improve their general outlook of life which in turn will make them to live a productive life. Hypertension, which is one of chronic non communicable disease conditions requiring a long term management necessitates it sufferers to have adequate knowledge about the disease condition. Patients' knowledge and understanding of the potential health risks associated with hypertension, and the potential positive effects of lifestyle modification are inadequate (Agyei-Baffour, et al, 2018). Nurses as experts in health education are expected to increase the knowledge and early identification of hypertensive disorder among pregnant women through a nurse led intervention.

In Zimbabwe, a study of knowledge of hypertension among 304 patients show that knowledge on hypertension was poor, with 64.8% of respondents stating that stress was its main cause, 85.9% stated that palpitations were a symptom of hypertension and 59.8% of respondents added salt on the table (Chimberengwa & Naidoo, 2019). Less than a third of clients (27.7%) had the knowledge of what hypertension is in South Africa. In a south western

Nigerian city a descriptive cross-sectional survey of 280 respondents showed that majority (65.7%) had poor knowledge about hypertension, only 1.8% recognized its symptomless nature (Adebanjo, et al, 2019).

Studies worldwide have reported deficiencies in the knowledge of hypertensive disorder by pregnant women who suffer from it. Studies in different parts of the world had identified lack of knowledge of hypertension among hypertensive patients as a major challenge in controlling hypertension. In Canada, 82% of patients did not know about hypertension while 92.2% had inadequate knowledge of hypertensive disorder in Sri Lanka. In South India, 52.4% of hypertensive patients had average knowledge (Joseph, et al, 2016). Despite reports of hypertensive disorders being documented in pregnancy, there is still little information on knowledge of hypertensive disorder among pregnant women in Nigeria (WHO, 2019).

Increasing pregnant women's knowledge through patient education has been identified as a key component in programs and interventions designed to control hypertensive disorder. In order to increase the effectiveness of patients' education, efforts have also been extended to improving public knowledge and awareness on the risks and complications of hypertension (Chimberengwa & Naidoo, 2019). This study will be conducted to evaluate nursing intervention on knowledge of hypertensive disorders among pregnant women at two selected hospitals in Okitipupa, Ondo State. The specific objectives was to assess the pre and post intervention mean score on knowledge of hypertensive disorders among pregnant women attending ante-natal clinic in the experimental and control group.

The following hypotheses were tested at 0.05 level of significance

H_o1: There is no significant difference in the pre intervention knowledge of hypertensive disorders between pregnant women in the experimental and control group.

H_o2: There is no significant difference in the post intervention knowledge of hypertensive disorders between pregnant women in the experimental and control group.

Methodology

The study adopted a pre-test, post-test, two group quasi-experimental design (one experimental group and one control group) to assess the outcome of intervention programme on the experimental. The target population for the study comprised of pregnant women attending ante-natal care in two selected hospitals in Okitipupa LGA which are Specialist Hospital, Okitipupa and General Hospital, Igbotako. The total population consisted of two hundred and twenty-two (222) booked pregnant women attending ANC. An estimated sample size of 96 was calculated adopting the proportional formula in Population Survey Sampling by Kish and Lislie, (1965). Purposive and proportional sampling technique were used to select participants for the study.

Data was collected using a self-developed questionnaire. The questionnaire consisted of two sections A and B. Section A assessed the socio-demographic data indicating personal information about the participants. It took care of age, trimester at booking, religion, marital status, educational qualification and income status while section B: elicited information on participants' knowledge of hypertensive disorders in pregnancy. The items were measured on 2 continuum scale ranging from 0 to 1 (Yes = 1, and No = 0). The correct answer was 1 and wrong answer was 0. Knowledge of hypertensive disorders in pregnancy as a variable was measured as either high (score between 14- 20), moderate (score between 8 - 13) or low

(score between 0 - 7). The self-structured questionnaire was given to experts in the field of Nursing science to ensure face and content validity. Amendment and corrections from their observations were made on the instrument before pilot study was conducted. The instrument was pre-tested once using internal consistency method by the researcher among pregnant women in Specialist Hospital, Ikare Akoko using twenty percent (20%) of the total sample for the study (96) percent (15 participants) and not the conventional 10 percent is because of the small sample size. Cronbach Alpha statistics was used to analyse the collected data which yielded reliability coefficient value of 0.749.

The data was collected in two phase through the research tools questionnaire the first data to be collected is a pre-test while the second phase is the post–test phase which was administered after the intervention package has been delivered to the pregnant women. The administered questionnaire was collected back after they have been duly responded to, for collation and analysis. The study was carried out in three phases namely pre-intervention stage, intervention stage and post-intervention stage. At the pre-intervention stage, pre-test was administered on the experimental group and the control group before the commencement of the intervention in order to ascertain the homogeneity of the two groups. At intervention stage, the study participants were trained on concept of hypertensive disorders in pregnancy. Control group has no special intervention. They were not exposed to the structured educational intervention program. At the end of the intervention phase, post-test was administered on experimental group and control groups. The purpose of this phase was to evaluate the level of the knowledge acquired by the participants. The collected data were coded and entered into statistical package for the Social Sciences (SPSS) version 27. Descriptive analysis was done using frequencies, percentages and mean score. Inferential statistics of t-test was used to test the hypotheses at 0.05 level of significance.

Results

Table 1: Socio-demographic Characteristics of participants in Experimental and control Group

Socio-demographic characteristics	Experimental Group (N=60)		Control Group (N=36)	
	Frequency	percentage	Frequency	Percentage
Age				
19 – 29 years	15	25.0	10	27.8
30 – 39 years	34	26.7	19	52.8
Above 39 years	11	18.3	7	19.4
Total	**60**	**100**	**36**	**100**
Trimester				
First	18	30.0	10	27.8
Second	22	36.7	14	38.9
Third	20	33.3	12	33.3
Total	**60**	**100**	**36**	**100**
Religion				
Islamic	24	40.0	13	36.1

Christianity	34	56.7	21	58.3
Traditional	2	3.3	2	5.6
Total	**60**	**100**	**36**	**100**
Marital				
Single	11	18.3	5	8.3
Married	47	78.3	29	48.3
Divorce	2	3.3	2	3.3
Total	**60**	**100**	**36**	**100**
Educational Status				
No Formal Education	5	8.3	5	13.9
Primary	18	30.0	4	11.1
Secondary	16	26.7	12	33.3
Tertiary	21	35.0	15	41.7
Total	**60**	**100**	**36**	**100**
Occupation				
Trading	3	4.2	12	33.3
Teaching	18	25.0	6	16.7
House Wife	51	70.8	2	5.6
Farming	8	13.3	8	22.2
Civil Service	17	28.3	8	22.2
Total	**60**	**100**	**36**	**100**

On socio-demographic variables of the participants as shown in table 4.1, 15(25%) of the participants in the experimental group were within 19-29 years, 34(26.7%) were within 30-39 years, while 11(18.3%) were above 39 years. On trimester in the experimental group, 18(30%) were in first trimester, 22(36.7%) were in second trimester while 20(33.3%) were in third trimester. On religion, 24(40%) were Muslims, 34(56.7%) were Christians, 2(3.3%) were traditional worshippers. On marital status, 11(18.3%) were single, 47(78.3%) were married, while 2(3.3%) were divorced. On educational status in the experimental group, 5(8.3%) had no formal education, 18(30%) had only primary education, 16(26.7%) had secondary while 21(35%) had tertiary education. On occupation in the experimental group, 3(4.2%) were traders, 18(25%) were teachers, 51(70.8%) were house-wives, 8(13.3%) were farmers while civil servants were 17(28.3%).

For the control group (27.8%) were within 19-29 years, 19(52.8%) were within 30-39, while 7(19.4%) were above 39 years. On trimester, 10(27.8%) were in first trimester, 14(38.9%) were in second trimester while 12(33.3%) were in third trimester. On religion, 13(36.1%) were Muslims, 21(58.3%) were Christians while 2(5.6%) were traditional worshippers. On marital status, 5(13.9%) were single, 29(80.6%) were married, while 2(5.6%) were divorced. On educational status, 5(13.9%) had no formal education, 4(11.1%) had only primary education, 12(33.3%) had secondary while 15(41.7%) had tertiary education. On occupation, 12(33.3%) were traders, 6(16.7%) were teachers, 2(5.6%) were house-wives, 8(22.2%) were farmers, while 8(22.2%) were civil servants.

Table 2: Descriptive Analysis of the pre- and post-intervention mean score on knowledge of hypertensive disorders among pregnant women attending ante-natal clinic

Knowledge of hypertensive disorders	Category of scores	Experimental				Control			
		Pre-intervention		Post-intervention		Pre-intervention		Post-intervention	
		Freq.	%	Freq.	%	Freq.	%	Freq.	%
Low	1-9	60	100.0	0	0.0	35	97.2	34	94.4
Average	10-13	0	0.0	5	8.3	1	2.8	2	5.6
High	14-20	0	0.0	55	91.7	0	0.0	0	0.0
Total		60	100.0	60	100.0	36	100.0	36	100.0
Mean		5.62±1.26		15.62±1.65		6.11±1.49		6.97±1.32	
Percentage		28.10		78.10		30.55		34.85	
Mean difference		10.00				0.86			
Maximum		9.00		20.00		10.00		10.00	
Minimum		3.00		11.00		4.00		5.00	

Results from Table 2 shows that in the experimental group, 60(100%) participants had low knowledge of hypertensive disorders at pre intervention stage, while at post intervention stage, only 5(8.3%) had average knowledge of hypertensive disorders and 55(91.7%) had high knowledge post intervention. It was also observed in the table that the mean score of knowledge of hypertensive disorders in the experimental group was 5.62 ±1.26 as compared with the 15.62 ±1.65. The minimum and maximum score of the participants in the experimental group were found to be 3.00 pre intervention and 9.00, and post intervention it was 11.00 and 20.00. The mean difference was 10.00. Results from the table shows that in the control group, almost all the participants 35 (97.2%) had low knowledge of hypertensive disorders at pre intervention while only 1(2.8%) had moderate knowledge of hypertensive disorder. At post intervention, a similar level was observed post intervention. The knowledge mean score of the participants in the control group was 6.11 ± 1.49 pre intervention, it increased at post intervention to 6.97 ± 1.32. The minimum and maximum score pre intervention was (4.00 and 10.00) and post intervention 5.00 and 10.00. The mean difference was 0.86.

Test of Hypotheses

$H_0$1: There is no significant difference in the pre intervention knowledge of hypertensive disorders between pregnant women in the experimental and control group

Table 3: Independent t-test showing the difference in the pre intervention knowledge of hypertensive disorders between pregnant women in the experimental and control group

Pre-intervention knowledge of hypertensive disorders	N	Mean	Std. Deviation	df	T	Mean diff	Sig
Experimental Group	60	5.62	1.26	94	1.735	0.49	.086
Control Group	36	6.11	1.49				

Results in Table 3 indicate that there was no significant difference in the pre intervention knowledge of hypertensive disorders between pregnant women in the experimental and control group ($t = 1.735$; $p > .086$). It could be deduced from this finding that both the experimental and control groups were homogeneous at the commencement of the study. The earlier set hypothesis was not rejected.

$H_0$2: There is no significant difference in the post intervention knowledge of hypertensive disorders between pregnant women in the experimental and control group

Table 4: Independent t-test showing the difference in the post intervention knowledge of hypertensive disorders between pregnant women in the experimental and control group

	N	Mean	Std. Deviation	df	T	Mean diff	Sig
Experimental Group	60	15.62	1.65	94	26.733*	8.64	.000
Control Group	36	6.97	1.32				

*P<0.05

Results in Table 4 indicate a significant difference in the post intervention knowledge of hypertensive disorders between pregnant women in the intervention and control group (Mean difference = 8.64; $t = 26.733$; $p < .000$). Going through the knowledge mean scores as shown above, one can say that there is difference in the post intervention knowledge of hypertensive disorders between experimental group (15.62) and the control group (6.97) with mean difference of 8.64. It can be deduced that the differences in the knowledge of hypertensive disorders between the two groups can only be due to the educational intervention given to the experimental group. Therefore, the set hypothesis was hereby rejected

Discussion of Findings

The present study revealed that participants knowledge of hypertensive disorders among pregnant women was low at the pre-intervention stage for both the experimental group (5.62±1.26) and the control group (6.11±1.49). However, the knowledge increased significantly at the immediate post intervention for the experimental group (15.62±1.65) with mean difference of 10.00 while the control group (6.97±1.32) remained almost the same with mean difference of 0.86. On the hypotheses tested, it was revealed that there was no significant difference in the pre intervention knowledge of hypertensive disorders among pregnant women in the intervention and control group (Mean difference = 0.49; $t = 1.735$; $p > .05$) while there was significant difference in the post intervention knowledge of hypertensive disorders between pregnant women in the intervention and control group (Mean difference = 8.64; $t = 26.733$; $p < .05$). Also, there was significant difference between the pre and post

intervention knowledge of hypertensive disorders among pregnant women in the control and experimental group.

It could be deduced from this finding that both the experimental and control groups were homogeneous at the commencement of the study but there was improvement after intervention for the experimental group. It could be deduced from these findings that the difference observed between pre and post intervention mean scores could not have been by chance but as a result of the intervention or training the participants (pregnant women) were exposed to. Going through the knowledge of hypertensive disorder mean scores as shown above, one can say that there is a major improvement between pre-intervention knowledge of hypertensive disorders.

These findings corroborated the reports of Adebanjo, et al (2019) who indicated that (65.7%) of the participants had poor knowledge of hypertensive disorder, only 1.8% recognized its symptomless nature. A study in Kogi State by Ukoha-Kalu, et al (2020) was also in cognizance with this finding; only 25% of the participants had good knowledge of hypertension. Another study in Tanzania revealed 60% of the participants had a low knowledge of preeclampsia and its complications. Chanyalew et al (2020) found in their study that knowledge of hypertensive disorder was low and there was a need for health education among women. Post intervention shows high score of 55 (91.7%) which corroborates with Eze et al (2018) which concluded that health education intervention improve knowledge of hypertensive disorder from 38.2 percent at pre-intervention to 79.1 percent at post-intervention among pregnant women.

Conclusion

The study concluded that nurse-led intervention increased the levels of knowledge of hypertensive disorders in the experimental group. It is safe to conclude that nurse-led intervention is needed to influence a change in the knowledge of hypertensive disorders.

Recommendations

In view of the findings stated earlier, the following recommendations were made:

1. Nurses should as a matter of urgency introduce health classes on hypertensive disorders at least once a month to foster good adherence to knowledge of hypertensive disorders
2. Health education on Hypertensive disorders of pregnancy should be done at every clinic days.

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