EFFECT OF PREGNANCY INDUCED HYPERTENSION AWARENESS PROGRAMME ON KNOWLEDGE OF RISK FACTORS AMONG GESTATION MOTHERS IN DUTSIN-MA LGA, KATSINA STATE

Ibrahim Abbas Ruma
abbersrumah02@gmail.com
Dr. O. L. Badaki & Dr. Abdu Mustapha
Department of Human Kinetics and Health Education
Federal University Dutsin Ma, Katsina State

Abstract

The study examined the effect of pregnancy induced hypertension awareness programme on knowledge of risk factors among gestation mothers in Dutsinma LGA, Katsina state. The study adopted quasi-experimental research design. The population for the study comprises all 1003 pregnant women attending the antenatal care at Malam Mande General Hospital Dutsinma between August and October, 2023. Ten percent of the population representing 100 pregnant women were selected using multi-stage sampling approach, specifically purposive sampling and simple random sampling. A researcher developed and experts' validated structured questionnaire, Knowledge of Risk Factors Pregnancy Induced Hypertension among Gestation Mothers Questionnaire (KRFQ) was used for data collection. The instrument yielded reliability indices of 0.80. Mean and standard deviation were used to answer the research questions while, Analyses of Covariance was used to test the hypotheses at 0.05 level of significance. The findings indicated that there is a significant difference in the knowledge of pregnancy induced hypertension ($F(1, 99) = 375.951$, $p= 0.00$) and knowledge of risk factor of pregnancy induced hypertension ($F(1, 99) = 508.274$, $p= 0.00$) among women who participated and who do not participate in the awareness programme. Based on the findings, it is recommended that health educators should implement pregnancy induced hypertension intervention programs for pregnant women at all hospitals and establish follow-up to assess their effectiveness over time.
Keywords: Pregnancy Induced Hypertension, Awareness Programme, Knowledge of Risk Factors, Gestation Mothers.

Introduction

The condition known as pregnancy-induced hypertension (PIH) is characterized by elevated blood pressure that is unique to pregnancy. It can include proteinuria or not, and its clinical manifestation usually appears after the 20th week of pregnancy or late in pregnancy, and it usually goes away or regresses after delivery. This encompasses pre-eclampsia, eclampsia, and gestational hypertension (Getaneh, Negesse, Dessie, & Desta, 2020). Aside elevated blood pressure levels, PIH is also characterized by protein in urine (proteinuria) and abnormal edema (Tesfaye, Tefera. & Sena, 2018). The syndrome of hypertension with or without proteinuria is known as pregnancy-induced hypertension, one of the most common medical complications of pregnancy is hypertension, which affects 5-8% of pregnancies worldwide (Morikawa, 2021). The prevalence of hypertensive disorders of pregnancy varies by country and may be genetically predisposed. It is a major cause of maternal and perinatal illness and mortality worldwide. In the United States, these conditions are responsible for 6.4% of deliveries among African Americans and 4.8% of deliveries among other women. Portugal had the highest prevalence, at 6%, while Sweden had the lowest, with only 1.5% of pregnancies complicated

by pre-eclampsia and hypertension (Onoja, 2014). Globally, 2.73% of women experience hypertensive disorders of pregnancy (HDP), with the incidence rates for chronic hypertension, preeclampsia, and eclampsia being 0.29%, 2.16%, and 0.28%, respectively (Gemechu, Assefa, & Mengistie, 2020). Approximately 10% of pregnant women globally experience hypertension. (Muti, Tshimanga, Notion, Bangure, & Chonzi, 2015).

It is estimated that 12% of pregnant women's deaths are related to PIH, and that approximately 350,000 pregnant women worldwide die each year from pregnancy-related causes, with more than 50% of these deaths occurring in Sub-Saharan Africa (SSA) (Musarandega, Nyakura, Machekano, Pattinson, & Munjanja, 2021). The prevalence of hypertension has been on the rise in SSA over the past few decades, yet a significant portion of individuals with hypertension remains untreated, inadequately treated, or undiagnosed. This contributes to the growing problem of cardiovascular disorders in the region (Gemechu, Assefa, & Mengistie, 2020). The risk of mortality is closely linked to the severity of hypertension, with the highest rates observed in women with eclampsia (Obada, Abba, & Msughter, 2021).

In Katsina State and particularly in Dutsin-Ma, the government, along with several non-governmental organizations (NGOs), has undertaken various initiatives to enhance maternal healthcare. Efforts include the establishment of clinics focused on prenatal and antenatal care, training healthcare workers in maternal health, and providing educational materials to expecting mothers. Programs led by organizations such as the Maternal Health Project in Katsina have sought to improve awareness about maternal health issues, but the effectiveness of these initiatives in terms of actual knowledge transfer regarding PIH remains unassessed (Adeyemi, et al, 2020). Currently, the prevalence of PIH in Katsina State is concerning, with reports indicating that hypertensive disorders affect approximately 10-15% of pregnancies in the region (Katsina State Health Management Board, 2021). Furthermore, observational studies highlight that a significant number of gestating mothers in Dutsin-Ma are unaware of the symptoms and risks associated with PIH or the importance of regular prenatal visits (Ibrahim, Dogara, & Abdullahi, 2022). This scenario demonstrates a profound gap in knowledge that this study aims to address.

Statement of the Problem

Recent studies have identified that culturally tailored health education significantly enhances comprehension of pregnancy-related risks and management among women in Katsina (Abubakar, et al, 2023). Many studies found out that pregnant women had poor knowledge about increased cardiovascular risks after HDP (Iqbal, et al, 2018; Teshome, Assefa, & Abate, 2020). Pregnant women often do not participate in the programmes for life-style changing because of low amount of knowledge, lack of suitable follow-up, and, also, the higher cost of healthier food. Poor levels of health education among pregnant women led to dangerous conditions like pre-mature delivery or death of neonates. Based on this, knowledge on PIH is very essential for pregnant women. Therefore, health education intervention

programme plays an important role in preventing risk factors like cardiovascular disease, monitoring blood pressure, and helping the patient to know about the condition of severity of the disease, symptoms, and management of good lifestyle, including appropriate diet and lifestyle modifications (Gholami, et al., 2022).

Educational interventions can significantly impact health outcomes by improving pregnant women's understanding and awareness of their health conditions. The WHO emphasizes the critical role of education in reducing health risks and promoting better health outcomes (WHO, 2019). Addressing this prevalence through community-based and other education programmes could significantly improve health outcomes for pregnant women. Thus, this study was conducted to ascertain effect of pregnancy induced hypertension awareness programme on knowledge of risk factors among gestation mothers in Dutsin-Ma.

Objectives of the Study

The objectives of this study are;

1. To compare the knowledge of pregnancy-induced hypertension awareness programme among pregnant women who participated and those who do not participate in Dutsinma LGA, Katsina state.
2. To compare the knowledge of risk factors of pregnancy-induced hypertension among pregnant women who participated and those who do not participate in pregnancy induced hypertension awareness programme in Dutsinma LGA, Katsina state.

Research Questions

1. What is the knowledge of pregnancy-induced hypertension awareness programme among pregnant women who participated and those who do not participate in pregnancy induced hypertension awareness programme in Dutsinma LGA, Katsina state?
2. What is the knowledge of risk factors on pregnancy-induced hypertension among pregnant women who participated and those who do not participate in pregnancy induced hypertension awareness programme in Dutsinma LGA, Katsina state.

Hypotheses

1. There is no significant difference in the knowledge of pregnancy induced hypertension among women who participated and those who do not participate in pregnancy induced hypertension awareness programme in Dutsinma LGA, Katsina state.
2. There is no significant difference in the knowledge of risk factors of pregnancy-induced hypertension among pregnant women who participated and those who do not participate in pregnancy induced hypertension awareness programme in Dutsinma LGA, Katsina state.

Methodology

This study adopted quasi-experimental research using a pre-test post-test control group design. A quasi-experimental pre-test, post-test control group design is appropriate because it allows

for comparison between groups, measures the change due to the intervention, and suits the practical and ethical constraints of healthcare-based educational research (Krass, 2016). The intervention involves health education programme on knowledge of prevalence and management of PIH and its risk factors, where by the study participants were grouped in to two groups – experimental and control groups. Experimental participants group received the pregnancy induced hypertension awareness programme while those in control group.

The programme consists of sessions which lasted for six weeks on weekly bases, addressing topics such as prevalence, risk factors of pregnancy induced hypertension, warning, signs and symptoms, life style modifications, appropriate nutrition, stress, management techniques, and regular antennal care. Interactive materials, including visual aids and pamphlets, were utilized to enhance leaning. The two groups mentioned above were both pre-tested to ensure that they were on the same level of the knowledge before the awareness programme started. The researchers met the experimental group a week after the pre-test at the hospital ANC unit and conducted the intervention programme, using Hausa language for understanding.

The population of the study comprised all pregnant women attending the antenatal care at Malam Mande General Hospital in Dutsin-Ma that were enrolled in the Antenatal Care (ANC) register between August to October, 2023, with the total number of 1003. Ten percent of the population representing 100 pregnant women were selected using multi-stage sampling approach, specifically purposive sampling and simple random sampling (Ejifugha, 1998). The purposive sampling technique was used to select only pregnant women in their 2nd and 3rd trimesters, as they are the most at risk of developing PIH. This ensured that participants were medically relevant to the purpose of the study. Additionally, only those attending ANC at Malam Mande General Hospital were considered, as the intervention was location-specific.

Purposive sampling allows the researcher to focus on a specific subgroup within the population that is most likely to be affected by or benefit from the intervention (Campbell, et al., 2020). After the eligible population was identified through purposive sampling, simple random sampling was used to select 50 participants each for the experimental and control groups. This method gave every eligible participant an equal chance of being selected, reducing selection bias. Simple random sampling ensures fair representation within the defined inclusion criteria and helps control for unknown confounding variables (Bhide, Shah, & Acharya, 2018).

The instrument for data collection in this study was researcher's developed questionnaire on the modified Likert Scale named Knowledge of Risk Factors Pregnancy Induced Hypertension among Gestation Mothers Questionnaire (KRFQ). The KRFQ was validated by three experts in the department of human kinetics and health education federal university Dutsin-Ma for content and face validity as suggested by Mason, Classen, Wersal, and Sisiopiku, (2020). To determine the reliability of KRFQ, split-half method was employed using spearman-brown prophecy formula (Singh, & Attri, 2020). Thirty copies of the questionnaire were used for pilot study on prevalence and management of pregnancy induced hypertension in General Hospital

Kurfi. The reliability index of 0.80 was obtained which indicates that KRFQ is reliable for use (Revelle, & Condon, 2019).

Descriptive statistics inform of mean, standard deviations and Cohen's *d* was used to answer the research questions while inferential statistics of Analysis of covariance (ANCOVA) was used to test the hypotheses at 0.05 level of significance. While mean and standard deviation are appropriate because they allow the researcher to summarize central trends and consistency in knowledge levels of gestating mothers, both before and after the intervention, thereby aligning with the descriptive and evaluative nature of the research questions (Cooksey, 2020), Cohen's *d* presents the magnitude of the effect size for the difference in knowledge between the experimental and control group, and it was obtained using Cohen's d formula (d= (M exp.−M control)/SD pooled) (Metsämuuronen, 2024). ANCOVA allows researchers to statistically control for these initial differences on a continuous variable that is correlated with the dependent variable (Singapore, & Chen, 2019)

Results

Table 1: Knowledge of PIH comparison between Experimental and Control Groups

Test	Groups	N	Mean	SD	Std. Error Mean	Cohen's d	Mean Diff.
Pre-test	Experimental	50	3.78	1.70	0.12	0.08	0.12
	Control	50	3.66	1.16	0.16		
Post-test	Experimental	50	7.88	0.79	0.11	3.96	3.82
	Control	50	4.06	1.13	0.16		

Table 1 indicated that the pre-test means and standard deviations for the knowledge of pregnancy induced hypertension of experimental group were 3.78 and 1.70 while that control group were 3.66 and 1.16 respectively. The pre-test mean difference was 0.12 and the calculated Cohen's d for the difference between the Experimental and Control groups in the pre-test is approximately 0.08 which indicates a very small or negligible magnitude of the effect. This indicates that the two groups were of the same level of knowledge before the programme. However, the post-test means and standard deviations for the knowledge of pregnancy induced hypertension experimental group were 7.88 and 0.79 while that control group were 4.06 and 1.13 respectively. The post-test mean difference was 3.82 in favour of experimental group and the Cohen's d of approximately was 3.96 which indicates a very large effect size. This suggests that participation in the pregnancy-induced hypertension awareness program had a profound impact on the knowledge of the pregnant women attending the antenatal care at Malam Mande

General Hospital in Dutsin-Ma, with the experimental group demonstrating significantly higher knowledge than the control group

Table 2: Analysis of post-test knowledge of PIH between Experimental and Control Groups

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	364.84[a]	2	182.42	188.120	0.000
Intercept	146.09	1	146.09	150.65	0.00
Pre-test	0.03	1	0.03	0.03	0.84
Treatment	364.56	1	364.56	375.95	0.00
Error	94.06	97	0.97		
Total	4023.00	100			
Corrected Total	458.91	99			

Table 2 revealed that the F-value computed was 375.95, the p-value of 0.00 was observed and the Mean Square obtained was 364.56. Since 0.00 is less than 0.05, the null hypothesis was rejected. The magnitude of the difference in knowledge of pregnancy-induced hypertension between participants and non-participants is substantial, as indicated by the high Mean Square for Treatment (364.56) compared to the Mean Square for Error (0.97). This large difference suggests a strong effect of the awareness program on knowledge. This suggests there is a significant difference in the knowledge of pregnancy induced hypertension between participants and non-participants in the awareness program and hence, the programme has significant effect on the knowledge of pregnancy induced hypertension (F (1, 99) = 375.951, p= 0.00). However, the table indicated that the p-value at pre-test level was 0.845 which shows there was no significant difference in the knowledge of pregnancy induced hypertension between who participated and who do not participate in pregnancy induced hypertension awareness programme before the programme

Table 3: Knowledge of risk factors comparison between Experimental and Control Groups

Test	Groups	n	Mean	SD	Std. Error Mean	Cohen's d	Mean Diff
Pre-test	Experimental	50	3.00	1.01	0.13	0.059	0.60
	Control	50	3.06	1.00	0.13		
Post-test	Experimental	50	7.52	0.88	0.12	4.91	4.14
	Control	50	3.38	0.94	0.13		

Table 3 Indicated that the pre-test means and standard deviations for the knowledge of risk factor of pregnancy induced hypertension of experimental group were 3.00 and 1.0 while that of control were 3.06 and 1.00. The pre-test mean difference was 0.60 and the calculated Cohen's d for the difference between the Experimental and Control groups in the pre-test is approximately 0.059 which indicates a very small or negligible magnitude of the effect. This indicates that the two groups were of the same level of knowledge before the programme. However, the post-test means and standard deviations for the knowledge of pregnancy induced hypertension experimental group were 7.52 and 0.88 while that control group were 3.38 and 0.94. The post-test mean difference was 4.14 in favour of experimental group. The magnitude of the effect size for the difference using Cohen's was approximately 4.91 indicates an extremely large effect size. This suggests that the pregnancy-induced hypertension awareness program had a very substantial positive impact on the knowledge of risk factors among the participants, with the experimental group demonstrating significantly higher knowledge than the control group after the program.

Table 4:

Analysis of post-test knowledge of risk factor between Experimental and Control Groups

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	428.901[a]	2	214.45	254.147	0.00
Intercept	141.451	1	141.45	167.635	0.00
Pre-test	411	1	411	487	0.48
Treatment	428.88	1	428.88	508.27	0.00
Error	81.84	97	.844		
Total	3481.00	100			
Corrected Total	510.75	99			

Table 4 revealed that the F-value computed was 508.27, the p-value of 0.00 was observed and the Mean Square obtained was 428.884. Since 0.00 is less than 0.05, the null hypothesis was rejected. The magnitude of the difference in knowledge of risk factors of pregnancy-induced hypertension between participants and non-participants is substantial, as shown by the high Mean Square for Treatment (428.88) relative to the Mean Square for Error (0.84). This large difference indicates a strong effect of the awareness program on knowledge of risk factors. This indicates that there is a significant difference in the knowledge of risk factors of pregnancy-induced hypertension between participants and non-participants in the awareness program and hence, the programme has significant effect on the knowledge of risk factors of pregnancy induced hypertension ($F(1, 99) = 508.274$, $p = 0.00$). However, the table indicated

that the p-value at pre-test level was 0.487 which shows there was no significant difference in the knowledge of risk factors of pregnancy-induced hypertension between who participated and who do not participate in pregnancy induced hypertension awareness programme

Discussion of Findings

The research finding indicates significant improvement observed in the knowledge of pregnancy-induced hypertension (PIH) among women attending antenatal care (ANC) at Malam Mande General Hospital following a pregnancy induced hypertension awareness programme underscores the vital role that education plays in maternal health. who participated in pregnancy induced hypertension awareness programme exhibited markedly improved awareness and understanding of PIH compared to who do not participate in pregnancy induced hypertension awareness programme, supporting findings from various studies that highlight the efficacy of structured educational programmes in enhancing health knowledge. This in line with a study conducted by Teshome, Assefa and Abate, (2020). Their finding demonstrated that women who participated in educational sessions on PIH exhibited significant gains in knowledge, which subsequently led to improved health-seeking behaviuors during pregnancy. Similarly, a systematic review by Deravi, (2022) indicated that educational interventions in ANC settings significantly increased women's awareness of complications such as PIH and encouraged proactive management of their health. Furthermore, a study conducted by Iqbal, Akhter, Ashraf, and Ayub, (2018) found that educational interventions led to increased knowledge and self-efficacy concerning PIH, which empowered women to seek timely medical care.

The findings of the current study underscore the effectiveness of pregnancy induced hypertension awareness programme in enhancing the knowledge of risk factor pregnant women on management of pregnancy-induced hypertension (PIH). In line with the synthesis of Gholami et al. (2022), who highlight the potential of various educational tools such as pamphlets and multimedia resources in improving awareness about hypertensive disorders of pregnancy (HDP). However, by addressing environmental and social factors that influence dietary habits, the educational intervention not only empowered women to make healthy choices but also recognized the significance of family support in fostering healthier lifestyles. Such recognition is paramount, as it broadens the understanding of health interventions beyond individual knowledge, encapsulating the social dynamics that play an essential role in managing PIH effectively.

Conclusion

Based on the findings of this research, it can be concluded that, the pregnancy induced hypertension awareness programme enhances the knowledge of pregnancy induced hypertension among women attending ANC at Malam Mande General Hospital Dutsin-Ma.

Pregnancy induced hypertension awareness programme improves the knowledge of risk factors that contribute to the prevalence of pregnancy-induced hypertension among the pregnant women attending ANC at Malam Mande General Hospital Dutsin-Ma in favour of experimental group.

Recommendations

Based on the findings of the study, the following recommendations are proposed:

1. Longitudinal Follow-up Programmes: Health educators should organise pregnancy-induced hypertension intervention programmes for pregnant women attending ANC at all the hospitals and establish follow-up programmes to monitor the impact of health education interventions over time, gathering data on health outcomes related to pregnancy-induced hypertension to assess the long-term effectiveness and make necessary adjustments to the programme.
2. Training for Healthcare Providers: Government at all level should encourage ongoing training for healthcare providers on pregnancy-induced hypertension, equipping them with the skills to communicate critical information and support pregnant women's understanding and management of their health.
3. Development of Educational Materials: Create and distribute targeted educational materials, such as pamphlets and brochures that highlight the risks factors related of pregnancy-induced hypertension and effective management strategies, ensuring that these resources are culturally appropriate and accessible
4. Incorporation of Family Involvement: Ministry of health at all level should initiate programmes that involve family members in the education process, as support from partners and family can enhance the pregnant women's understanding and management of hypertension, leading to better health outcomes.

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