EFFECT OF HEALTH EDUCATION ON VOLUNTARY TESTING AS A STRATEGY FOR PREVENTION OF HEPATITIS B VIRUS SPREAD AMONG PREGNANT WOMEN IN YOLA, ADAMAWA STATE - NIGERIA.

BY

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Abstract

The purpose of this study was to examine the effect of Health Education on voluntary testing as a strategy for prevention of hepatitis B virus spread among pregnant women in Yola, Adamawa State - Nigeria. The population for this study comprise of one hundred and forty-three thousand six hundred and eighty-nine (143,689) pregnant women registered in hospitals, Adamawa State, Nigeria. Out of which one thousand one hundred and ninety-four (1,194) pregnant women were used as target population from the three (3) selected health facilities. The sample size for this study consists of sixty (60) pregnant women who were drawn from the target population of pregnant women, thirty (30) experimental group and thirty (30) control group for the purpose of generalization. A multi-stage sampling technique was used for this study. The instrument used for data collection was researcher developed questionnaire through an intervention programme. Pilot study was conducted to ascertain the reliability of the instrument, a reliability index of 0.919 was obtained which means that the instrument was reliable. Data were collected as pre-test scores, after the intervention, the same set of questionnaire was re-administered. Data were again collected from the two groups (experimental and control), and analyzed with the help of Statistical Package for the Social Sciences (SPSS), IBM version 26. Frequencies and percentages, means and standard deviation was used in answering the research question. Inferential statistics of analysis of covariance (ANCOVA) was used in the test of the hypothesis at the fixed probability level of 0.05. Finding revealed that six weeks health education programme has significant effect on voluntary testing among pregnant women in Yola p-value of 0.000 ($p < 0.05$), Based on the finding, it was recommended the use of Posters, billboards, awareness campaigns and other communication channels to increase the knowledge of the public on measures against hepatitis B virus spread.

Keywords: Health Education, Hepatitis B Virus, Pregnant Women

Introduction

The increase rate of Hepatitis B virus spreads through mother to child is of great concern. Approximately 370,000 newborns are prenatally infected with HBV in sub-Saharan Africa annually, and over 20 million people estimated to be infected with Hepatitis B virus around the world. Nigeria has the largest number of people living with HBV infection in sub-Saharan Africa and ranks third after China and India, globally (Olakunde, Adeyinka, Olakunde, Uthman, Bada, Nartey, & Ezeanolue 2021). Hepatitis B virus (HBV) is a deoxyribonucleic acid (DNA) virus that causes hepatitis B infection (Gebrecherkos, Girmay, Lemma, & Negash, 2020). Hepatitis B virus infects liver cells (hepatocytes) and cause both acute and chronic disease. When a person is first infected with the hepatitis B virus, is called an "acute infection" (or a new infection). Mostly, healthy adults that are infected do not have any symptoms and are able to get rid of the virus without any problems. Some are not able to get rid of the virus after six months it became chronic. It is believed that host factors, in particular immune responses, are responsible for determining whether the infection is cleared or becomes chronic (Ciupe, Ribeiro, Nelson, & Perelson, 2007).

Nigeria is still considered one of the highly endemic countries for Hepatitis B, mainly due to perinatal transmission of Hepatitis B virus. The detection Hepatitis B surface antigen (HBsAg) in pregnant women is a marker million for the risk of mother-to-child HBV transmission. This is hospital-based cross-sectional study where two hundred and forty-seven (247) pregnant women attending antenatal facility of University of Maiduguri Teaching Hospital between March 2016 and February 2017 were screened for HBsAg using one step HBsAg test strip out of the 247 pregnant women tested, 12 (4.9%) were seropositive for HBV. The HBsAg prevalence obtained in pregnant women in the previous study reflects high risk of HBV perinatal transmission and call for a widespread immunization with HBV vaccine birth dose and subsequent treatment of mothers (Akinola, Talle, Gimba, Nwunuji, Oderinde, Bukbuk, & Adamu 2020).

Opara, Lardier, Herrera, Garcia-Reid, and Reid (2020), stated that health educational intervention on hepatitis B consisted of a 30 – 60minute interactive discussion on the epidemiology of Viral Hepatitis (VH) strains, modes of transmission, care, treatment options, and preventive strategies, followed by a question/answer session. While the community-based intervention consisted of providing education to diverse, ethnic minority youth about Viral Hepatitis (VH) transmission, risk reduction, with a focus on drug injecting practices, sexual risk behaviour, and access to hepatitis B virus (HBV) and hepatitis C virus (HCV) testing and treatment. (Opara et al., 2020). Rabiu, Akinola, Adewunmi, Omololu, and Ojo (2010) stated that, HBV infection is a major global health problem, approximately 2 billion people who have been infected worldwide, more than 350 million are chronic carriers. According to Gebrecherkos et al. (2020), HBV infection is the 10th leading cause of global death resulting 500,000 to 1.2 million deaths per year, with 2 billion people infected worldwide and 257 million suffering from chronic HBV infection, of which 10% of these are in sub-Saharan Africa and East Asia.

Several efforts have been made by different agencies and organizations in order to reduce the rate of HBV transmission. In 2016 the World Health Assembly adopted the first global health targets for elimination of viral hepatitis as a public health threat and viral hepatitis was incorporated in the sustainable development goals 2, (Nayagam, Shimakawa, &

Lemoine, 2020). The World Health Organization (WHO) Global Health Sector Strategy HBV impact targets, included a 90% reduction in new infections and a 65% reduction in mortality by 2030, with an aim to reduce the prevalence of hepatitis B surface antigen (HBsAg) in children to 1% by 2020 and 60 <0.1% by 2030, (Nayagam et al., 2020). But unfortunately, in spite of all these efforts, the rate of HBV spread appears to be expanding. Yakasai., Ayyuba, Abubakar, and Ibrahim (2012) also, stated that when a pregnant woman is infected with HBV, there is a chance she may infect her fetus, as about 10 - 20% of women seropositive for HBsAg transmit the virus to their neonates. Women who are seropositive for both HBsAg and HBeAg, mother-to-child transmission is approximately 90%. Infected neonates have an almost 90% risk of Chronic Liver Disease (CLD) and also the chance of spreading the disease to siblings and to the community (Yakasai., et al., 2012). Similarly, when pregnant women are infected, they constitute a serious health risk not only to their unborn child as stated above, but also the society at large.

The researcher being the main author and a Certified Community Health Extension Worker, consulted patients while working in his home town of Ngurore, a suburb of Yola-South Local Government Area of Adamawa State during covid 19 pandemic lockdown in March, 2020. Among patients consulted at home between March and May, 2020, eighteen (18) patients were sent for laboratory investigation of which 6 (33.3%) tested positive of hepatitis B Virus. 3 (16.7%) of the patients tested positive were pregnant women, 1 (5.5%) was not pregnant mother and 2 (11.1%) were young men between the ages of 18 and 35 years. For the fact that HBV is among the communicable disease affecting the area under study, it is eminent that HBV is transferable during birth which make the babies at risk of contracting the virus. This position of the main author, researcher was supported by Olakunde, Adeyinka, Olakunde, Uthman, Bada, Nartey, and Ezeanolue, (2021) that, stated approximately 370,000 newborns are pre-natally infected with HBV in sub-Saharan Africa annually. Yakasai et al. (2012) also affirmed that, when pregnant women are infected with HBV, they constitute a serious health risk not only to their unborn child along, but also the society at large. Gebrecherkos et al. (2020) also asserting that, HBV affects all age groups globally including pregnant woman and the newly born infant through vertical transmission (mother-to-child transmission).

In order to tame the tides of infection and to identify possible way of conveying the preventive strategies to the community in general and women in particularly, this study therefore, assessed the effect of health education on voluntary testing as a strategy for prevention of hepatitis B virus spread among pregnant women in Adamawa State, Nigeria. In so doing, the researchers assumed that six weeks health education programme may have effect on voluntary testing among pregnant women attending antenatal clinic in Yola, Adamawa State, Nigeria, hypothesizing that, there is no significant effect of six weeks health education intervention programme on enhancing voluntary testing among pregnant women attending antenatal clinic in Yola, Adamawa State, Nigeria.

Method and Material

Pre-test post-test experimental research design was used for this study. This is because same assessment measures were given to participants both before and after they have received a treatment or been exposed to a condition, with such measures used to determine if there are any changes that could be attributed to the treatment or condition given. The population for this study comprised of one hundred and forty-three thousand six hundred and eighty-nine (143,689) pregnant women registered in Adamawa State, Nigeria. Out of which twenty-one thousand one hundred and sixty-nine (21,169) pregnant women are from Yola the study area out of which, one thousand one hundred and ninety-four (1,194) pregnant women was used as a target population from the three (3) selected health facilities. The sample size for this study consists of sixty (60) pregnant women who were drawn from the target population of pregnant women in Yola, Adamawa State. A multi-stage sampling technique was used in data collection. The instrument used for data collection was a researcher's developed questionnaire with intervention programme. The questionnaire comprised of six (6) sections (**A – G**). Letter of introduction was collected from Head, Department of Human Kinetics and Health Education, Faculty of Education, Ahmadu Bello University, Zaria and issued to the Head of selected health facilities in Yola, Adamawa State. Four (4) research assistants who, comprised of health workers, who were experienced in data collection and have prior knowledge of health care services at the primary health care center were used to assist the researchers during the study. Ethical approval was obtained with the following number (MAUTHY/SUB/S.128/251) from the area of study before commencement of data collection. Data collected were analyze with the help of Statistical Package for the Social Sciences (SPSS), IBM version 26. The Analysis of Covariance (ANCOVA) procedure was used to evaluate whether there is a significant difference between experimental and Control group after the health education intervention session.

Results and Discussion

To determine the effect of six weeks health education intervention on voluntary testing as a preventive measure against the spread of hepatitis B virus, the two groups' rated responses were taken before (pre) and after (post) the intervention was computed and compared using mean scores and standard deviation. The benchmark mean was fixed at 2.50 as the midpoint average of the 4 point modified likert scale used for the measurement. The summary is presented in Table 1.0

Table 1.0: Comparison of responses between the two groups on voluntary testing as a preventive measure against the spread of hepatitis B virus.

S/N	Voluntary testing as preventive measure against HBV	Status	Experimental Mean	Experimental Std. Dev.	Control Mean	Control Std. Dev.	Mean Diff
1	Voluntary testing is an important component of prevention and control of HBV spread among pregnant women	Pre-test	3.83	0.384	4.00	0.000	-0.17
		Post-test	3.77	0.430	3.34	0.484	0.42
2	Voluntary testing enables pregnant women know their HBV status and identify those who need care	Pre-test	3.79	0.412	4.00	0.000	-0.21
		Post-test	3.53	0.507	2.69	1.391	0.84
3	Voluntary testing helps in early treatment among infected pregnant women	Pre-test	3.62	0.820	4.00	0.000	-0.38
		Post-test	3.67	0.479	3.24	0.435	0.43
4	Voluntary testing can reduce chances of getting rid of HBV among pregnant women	Pre-test	3.34	0.857	3.31	0.471	0.04
		Post-test	3.60	0.563	3.34	0.484	0.26
5	Voluntary testing is an important link to HBV care and support.	Pre-test	3.59	0.682	3.96	0.196	-0.38
		Post-test	3.70	0.466	3.17	0.602	0.53
	Aggregate	Pre-test	3.63	0.389	3.85	0.107	-0.22
		Post-test	3.65	0.292	3.16	0.394	0.49

(Decision mean = 2.50)

Mean score of subjects in the control and experimental group in Table 1.0 showed that both groups responded that voluntary testing as a preventive measure against the spread of hepatitis B virus is important in mitigating the spread of the disease. The group were unanimous on this position in their expression before (Pre) and after (Post) health education intervention. This consensus of position on voluntary testing as a preventive measure against the spread of hepatitis B virus was maintained throughout the expressed responses in the table. Subjects in both groups agreed that such testing helps in the prevention and control of the virus as well as enables pregnant women know their HBV status and identify those who need care. They agreed that voluntary testing helps in early treatment for infected pregnant women and can improve chances of getting rid of HBV as well as provide important link for HBV care and support. The mean aggregate for the two groups before and after were 3.63 and 3.65 with standard deviations of 0.389 and 0.292 for subjects in the experimental group, while subjects in the control group, the aggregate mean score before and after the health education intervention were 3.85 and 3.16 with standard deviations of 0.107 and 0.394 respectively. The observed mean differences were relatively low as indicated in the table. On a relative comparison with the benchmark, it could be concluded that, subjects in the experimental and control group all agreed that voluntary testing is a major preventive measure against the spread of hepatitis B virus among pregnant women in the study location. The higher mean score could be attributed to the

exposure of the subjects to the health education used in the experiment. While the lower mean score showed that control group have knowledge on voluntary testing.

The hypothesis formulated for this research study read that, there is no significant effect of six weeks health education intervention programme on enhancing voluntary testing among pregnant women attending antenatal clinic in Yola, Adamawa State, Nigeria.

This hypothesis was tested with the scores of the experimental and control scores at the pre-test and post-test levels of the experiment. The covariance procedure was used for the test because of the need to determine the effect of pre-test on the outcome of the experiment. The pre-test score for the groups was therefore used as a covariate factor. While the post-test scores were used as the dependent variable. The groups served as the independent variable. The result of the covariance analysis model is summarized in Table 2.0

Table 2.0: Analysis of covariance on effect of six weeks health education on voluntary testing by experimental and control group

Source	Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	3.229[a]	2	1.614	12.547	0.000
Intercept	3.475	1	3.475	27.005	0.000
Pre-test	0.007	1	0.007	0.053	0.818
Groups	2.900	1	2.900	22.541	0.000
Error	7.205	56	0.129		
Total	696.560	59			
Corrected Total	10.434	58			

(F-critical = 4.00, $p < 0.05$)

The result in the table revealed that the variability obtained between the experimental and control in the aggregate mean score shown in table 1.0 and Table 2.0 was significant. The observed F-value for the test was 22.541 obtained at degree of freedom, (df) = 1, 56 with a p-value of 0.000 ($p < 0.05$). These observations implied that the effect of the six weeks health educational intervention programme had significant effect in enhancing voluntary testing as a preventive measure against the spread of hepatitis B virus among the pregnant women attending antenatal clinic in the State. The result indicated that the significant impact was not influenced by the groups' participation in the pre-test administration of the test. The F-value for the pre-test as the covariate factor was 0.053 with a p-value of 0.818 ($p > 0.05$). These observations implied that the observed significant difference obtained was directly attributable to effect of the health education intervention administered in the experimental group. The null hypothesis that, there is no significant effect of six weeks health education intervention programme on enhancing voluntary testing among pregnant women attending antenatal clinic in Yola, Adamawa State, Nigeria is therefore rejected.

Discussion

This study assessed the effect of Health Education on voluntary testing as a strategy for prevention of hepatitis B virus spread among pregnant women In Yola, Adamawa State – Nigeria, through an experimental procedure. From analysis of

the data, the study found that use of health education intervention significantly enhance voluntary testing for hepatitis B virus among pregnant women. The six weeks health education enlighten them that voluntary testing helps in early treatment for infected pregnant women and can improves chances of getting rid of HBV as well as provide important link for HBV care and support. In this study, subjects whom were exposed to six weeks health education were found to be significantly responsive to voluntary test than subjects in the control and were not exposed to the health education programme. The finding of this study on voluntary testing supported that of Mustapha, Ibrahim, Balogun, Umeokonkwo and Mamman (2020). Who found that improved surveillance of HBV infection and screening of women attending ANC in Gamawa Local Government Area of Bauchi State, Nigeria, helped in reducing the incidence of HBV spread.

The finding is also consistent with Mulakoli (2021) who conducted a research on prevalence of occult hepatitis B infection in HBsAg negative blood donors in Nairobi, Kenya: reported that, Infections linked to blood transfusion or tissue transplants are a major challenge because of the serological window period (WP) and a latent phase exhibited by most viral infections. Hepatitis B virus (HBV) is one of the transfusion transmissible infections that is commonly screened for in donated blood across the world. In line with the above finding, voluntary testing can be used as a strategy for prevention of hepatitis B virus spread among pregnant women in Yola, Adamawa State - Nigeria.

Conclusion

Six weeks health education intervention programme enhanced voluntary testing for hepatitis B virus among pregnant women attending antenatal clinic in Yola, Adamawa State.

Recommendations

Antenatal and Postnatal services for childbearing mothers should be all time inclusive of health education on preventive measures against hepatitis B virus spread and there is a need to encourage the use of traditional and religious leaders in enlightenment on the need for adoption of preventive measures against HBV spread in the study area.

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