

Educational Intervention As A Strategy For Improving Blood Pressure Status Of Market Women In Lagos, Nigeria.

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Citation

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Abstract

Sustained high blood pressure is one of the leading causes of morbidity and mortality in our society. The usefulness of educational intervention for improving the blood pressure status of market women was assessed in this interventional community based study. The socio-demographic data, blood pressure, body mass index (BMI) and awareness of the blood pressure status of the subjects were documented. Counseling of the respondents on hypertension, risk factors, drug compliance and life style modification took place within 3 months. The results showed that 59% of the respondents were unaware of their BP status, 21.5% were discovered to have elevated blood pressure. Among those found to be hypertensive only 30.2% were on medication and none of them had effective BP control. At post intervention, all (100%) of the subjects now had good knowledge of their BP status and 86.05% had effective control of their B.P. Lifestyle modification of respondents including their body mass index also slightly improved post intervention. This study establishes that blood pressure status of individuals in the community could be enhanced by an educational intervention strategy.

INTRODUCTION

Hypertension is the third killer disease worldwide, accounting for one in every eight deaths^{1,2}. In Nigeria, the age-adjusted prevalence of hypertension according to International Collaborative Study of Hypertensive In Blacks (ICSHIB) was recorded to be 14.5%³. Although, with the current definition of hypertension based on JNC VII guidelines, many more Nigerians (20-25%) can be said to be hypertensive^{3,4}.

Hypertension increases the risk of stroke, myocardial infarction, congestive heart failure, sudden cardiac death, peripheral vascular disease and renal insufficiency^{1,2}. Premature mortality from cardiovascular diseases could be prevented by early detection and effective control of hypertension^{1,2,4}. The growing scourge of heart diseases in developing countries will not be blunted or reversed by the medical profession alone; it requires public understanding of the health issues and to create a situation for support of policies of primary prevention.

Based on prevalence of hypertension in Nigeria, only 1/3 of Nigerians are aware that they are hypertensive and of this only 2/3 are on treatment for the hypertension⁵. Most Nigerians do not see reasons for regular monitoring of their blood pressure and this may be because of inadequate

provision of proper education and counseling by health care provider on the risks associated with high blood pressure.^{6,7} Lack of interest or busy schedule on the part of individuals has also been identified.^{6,7}

Until recently women's health concentrated on women as mothers i.e. reproductive health, stressing the importance of womb and breast health.⁸ However, cardiovascular diseases remain major killer of women.^{8,10,11} Worldwide, over eight million women die each year from heart disease or stroke, almost eighteen times the number who die of breast cancer and six times more than the number who die of HIV/AIDS^{8,10,12}.

Unfortunately, women's are still considered vulnerable individuals in our society, especially suffering from educational discrimination. That is why United Nation Millennium development goal focuses on eradication of gender inequality, women empowerment and improvement of maternal health care. Therefore, in order to achieve the above goal, education of women about risks of hypertension and the need to be aware of their B.P status can not be over emphasized.^{9,10,12}

In this paper, we report the importance of educational intervention for improving the blood pressure status of market women in Lagos, Nigeria.

METHOD AND MATERIALS

STUDY CONDUCT & DESIGN

This study was designed as an interventional; community based cross sectional survey conducted according to the Guidelines for Good Clinical Practice at Ereko Market of Lagos Island Local Government, Lagos state, Nigeria, between Nov 2008 and February 2009.

STUDY POPULATION

This consisted of healthy women at Ereko market. Inclusion criteria included market women, who own shop in the market, whose age ≥ 20 years and were volunteers. Exclusion criteria included pregnant women, age < 20 years, severe devastating illness that could interfere as confounding factors.

SAMPLE SIZE CALCULATION

The minimum number of subjects required for this study was determined using approximate formula for prevalent study thus

Figure 1

$$n = \frac{p \cdot q}{E^2} \times (1.96)^2 \quad (\text{WHO 1982}).$$

$n =$ minimum number of subjects required

$p =$ maximum expected prevalence rate:

11.2% for hypertension in Nigeria

(Akinkugbe O. O. 1997)

$$q = 100 - p$$

$E =$ margin of sampling error set at 5%,

with confidence interval set at 95%

$$n = \frac{11.2(100 - 11.2) \times 3.84}{5^2} \quad n = 153$$

The minimum number of subjects required for this work was calculated to be 153 but the number was increased to 200 so that more volunteers could benefit from the intervention. These participants were randomly selected within the market.

ETHICAL CONSIDERATION

The Local Government approval was obtained for the purpose of this study in November 2008 from the authority of Lagos Island Local Government. Consent of the participants was sought and they were also made to understand the nature of and what they stood to benefit from the research.

PILOT STUDY

A pilot study was carried out to assess the acceptability and feasibility of this study. Samples of the questionnaire were administered on twenty market women in Balogun Market in Lagos.

PRE-INTERVENTION STUDY

DATA COLLECTION

The instrument of data collection was a questionnaire. A well structured questionnaire was designed for the purpose of gathering information from the respondents. These included demographic data of the volunteers e.g. age, gender, educational status and marital status. The questionnaire was self administered for the educated ones but less educated subjects were assisted by the investigator and the research assistants. In section B of the questionnaire, weight and height of the volunteers were measured and body mass index (BMI) calculated. $BMI = \text{weight (kg)}/\text{height (m}^2\text{)}$. For this study, normal body weight was defined as BMI of between 18.5 – 24.9 kg/m^2 , Overweight between 25 – 29.9 kg/m^2 and Obese between 30 kg/m^2 and above. Underweight was defined as BMI of less than 18.5 kg/m^2 . Blood pressure (B.P) measurements were carried out using the mercury sphygmomanometer in the premises of a mosque located within the market. Subjects were seated in a chair with their back supported and their right arm placed at the level of the heart. After 5 minutes of rest, systolic and diastolic B.P were measured twice with at least 2 minutes interval between the two measurements. The average of the two readings for both systolic and diastolic BP was used.

For this study, hypertension was defined as systolic BP ≥ 140 mmHg and Diastolic BP ≥ 90 mmHg.

were thoroughly counseled on how important it is to know their B.P status, also on lifestyle modification and reduction of risk factors for hypertension (e.g. excess weight, fatty food, excessive salt intake, alcohol, sedentary life, oral contraceptive etc). Those that were found to have elevated high blood pressure were advised to visit healthcare facilities

of their choices for better management of their conditions. Those on anti-hypertensive medication were counseled on the importance of drug compliance and to always have their B.P checks at least at monthly interval and know their B.P values off head. This counseling took place three times within the study period for reinforcement.

POST-INTERVENTION STUDIES

Three months after the intervention, the BP measurement of the subjects was repeated. The BMI was calculated again after checking the new weight. Demographic data and other questions were asked using the same questionnaire used for the pre-intervention study to see if there was general improvement in their knowledge of risk factors for hypertension, improvement in lifestyle modification and frequency of Blood Pressure check.

DATA ANALYSIS

The results of data were collated and analysed using EPI – INFO version 6.

RESULTS AND DISCUSSION

The result of this study showed that educational intervention had a positive impact in improving the blood pressure status and reduction of some cardiovascular risk factors of the respondents. Below are tables and graphical representation of the results.

About the socio-demographic characteristic of the respondents, the results showed that majority of the respondents were within the age range of 36 years and above (68.5%), most of them were married (79.5%) and majority had low level of education (36.5%). Only 4% had tertiary education. This may be explained by the fact that adult, married women who are educationally disadvantaged populate our market places.

Socio-demographic pattern of respondents

Figure 2

The tables above revealed that majority of the respondents were aged ≥ 36 years (68.5%), married (79.5%) and had low level of education (36.5%). Only 4% had tertiary education.

Age	Frequency	Percent
20-25	18	9.0%
26-30	23	11.5%
31-35	22	11.0%
36 – above	137	68.5%
Total	200	100.0%
Marital Status		
Single	12	6.0%
Divorced	10	5.0%
Married	159	79.5%
Widowed	19	9.5%
Total	200	100.0%
Level of Education		
Primary	73	36.5%
Secondary	72	36.0%
Tertiary	8	4.0%
Nil	47	23.5%

Pre and Post interventional BP status of respondents and their level of control.

Figure 3

The table above showed that 21.5% of the respondents had their blood pressure in the hypertensive range, this figure drastically reduced to 3% post intervention. Furthermore, none of the respondents detected hypertensive had effective BP control (defined as <140/90mmHg), whereas, post interventional study revealed that 86.04% of the hypertensive now had effective Bp control.

Measured BP	Pre		Post	
	Frequency	Percent	Frequency	Percent
Hypertensive	43	21.5%	6	3.0%
Normotensive	157	78.5%	194	97.0%
Total	200	100.0%	200	100.0%
BP Control				
Non effective	43	100%	6	13.95%
Effective	0	0%	37	86.04%
Total	43	100%	43	100.0%

Awareness of blood pressure status among the market women in Lagos Island Local Government.

Figure 4

The table above showed that 59% of the respondents were unaware of their BP status, only 34.5% knew their BP was normal and 6.5% knew they were hypertensive. At post intervention, all (100%) of the respondents were aware of their BP status as compared to 49%.

Awareness of BP	Pre		Post	
	Frequency	Percent	Frequency	Percent
Normotensive	69	34.5%	157	78.5%
Hypertensive	13	6.5%	43	21.5%
No idea	118	59%	0	100.0%
Total	200	100%	200	100%

Proportion of hypertensive respondents on medication

Figure 5

The table above revealed that the proportion of the hypertensive subjects who commenced medication and lifestyle modification post counseling increased to 97.67% compared to 30.2% pre intervention.

Hypertensive	Pre		Post	
	Frequency	Percent	Frequency	Percent
On Medication	13	30.2%	42	97.67%
NO medication	30	69.76%	1	02.32%
Total	43	100.0%	43	100.0%

The prevalence of hypertension in this study was documented to be 21.5%, this was similar to other established findings. The Nigerian Non communicable disease survey (adjusted to 140/90 mmHg) put prevalence at 20-25%.

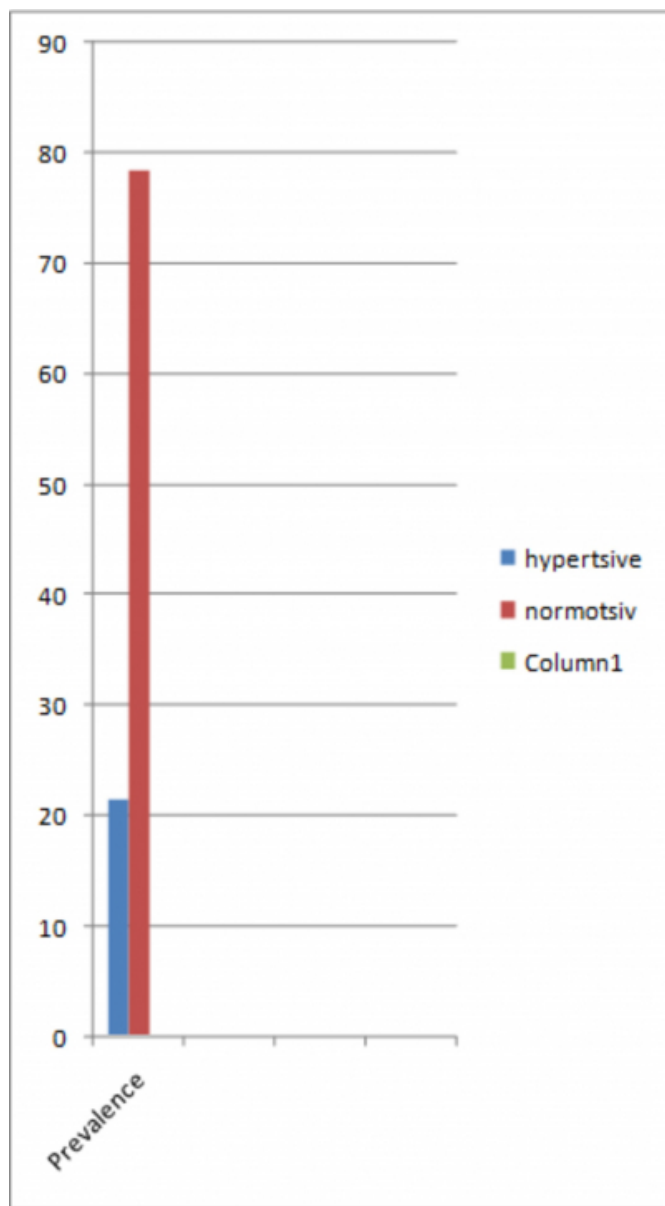
Concerning the awareness of blood pressure status among the respondents, the result revealed that 59% of the respondents were unaware of their BP status, only 34.5% knew their BP was normal and only 6.5% knew they were hypertensive prior intervention. At post intervention, all (100%) of the respondents were aware of their BP status. This showed effectiveness of education and counseling in improving awareness about BP and its cardiovascular risk factors.

Furthermore, the above findings were consistent with study of Mosca et al in 2004 titled "Tracking women awareness of Heart Diseases."⁵ From their study, it was documented that women in United States of all ethnic and age groups have suboptimal knowledge about cardiovascular diseases risk factors despite the fact that there were well establish method to lower risk⁵. The low level of awareness among Nigerian women may not be unconnected to lack education and little campaign on cardiovascular health, as most mass media campaigns are on reproductive health and HIV/AIDS information.

Prevalence of hypertension in the study population

Figure 6

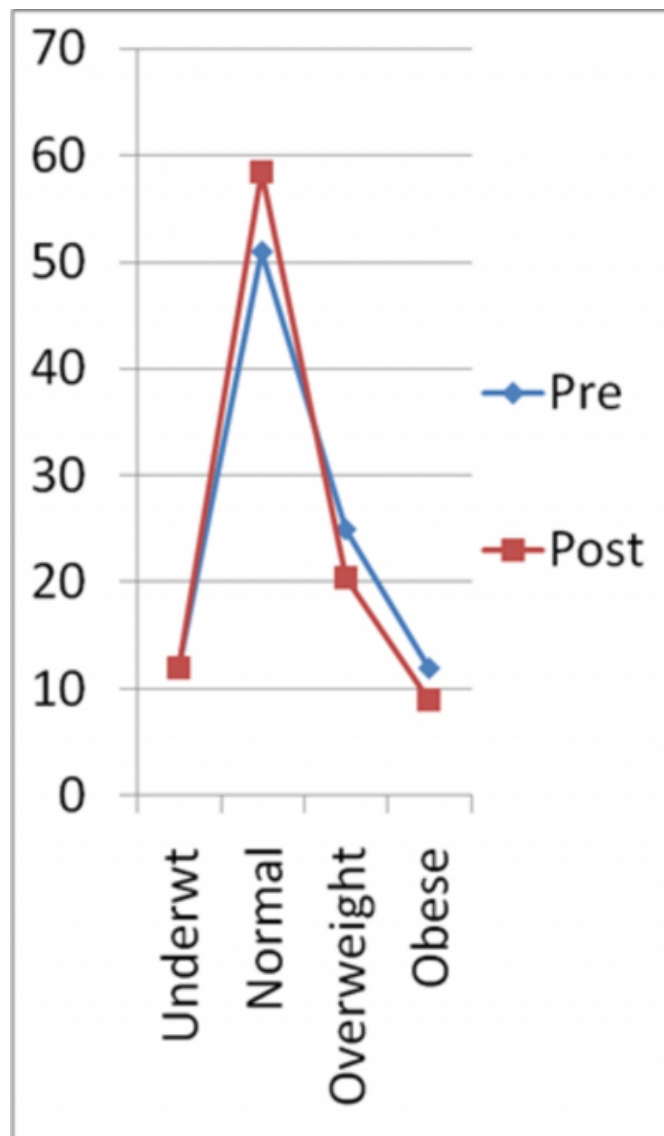
The figure above showed 21.5% prevalence of hypertension among the respondents.



Pre and Post intervention BMI of the respondents.

Figure 7

The figure above showed that there was slight improvement in BMI of the respondents after intervention. 12%, 52.5%, 23.5%, & 12% were recorded for underweight, normal, overweight and obese respectively pre intervention as compared to 12%, 59.5%, 18.5%, & 10% for underweight, normal, overweight and obese respectively at post intervention.



Concerning the control of blood pressure, none of the respondents detected hypertensive had effective BP control (defined as <140/90 mmHg), whereas, post intervention, this had remarkably increased to 86.04% now achieving effective BP control.

Furthermore, the proportion of the hypertensive subjects who commenced medication and lifestyle modification post counseling increased to 97.67% compared to 30.2% pre intervention.

In the study of Hayden et al,⁶ while evaluating behavioral and educational intervention for achieving blood pressure control, it was found that from baseline to 6months, self reported medication adherence increased by 9% in education/behavioral group as compared to 1% in non-behavioral group, thus further buttressing the importance of education.⁶

In our study, there was slight improvement in BMI of the respondents after intervention. Pre intervention, 23.5% & 12% of the respondents were found to be overweight and obese respectively, whereas it reduced to 18.5%, & 10% for overweight and obese respectively at post intervention.

Respondents' knowledge of risk factors for hypertension

Figure 8

The table above showed that education improved the knowledge of the respondents about the risk factors for hypertension. The proportion of respondents who did not have any idea of the risk factors for hypertension reduced from 25% to 0%. Furthermore, many more of the respondents understood better the risk of increasing age, association of family history, high salt intake, obesity and smoking in hypertension as reflected in the increased percentages of the respondents with correct knowledge post intervention.

Risk factors	Pre		Post	
	Frequency	Percent	Frequency	Percent
Age	5	2.5	30	15
Family history	8	4	33	16.5
High salt intake	4	2	28	14
High fat intake	5	2.5	20	10
Smoking	2	1	8	4
Alcohol	10	5	14	7
Sedentary life style	8	4	15	7.5
Obesity	11	5.5	18	9
Stress	23	11.5	13	6.5
Thinking	55	27.5	6	3
Oral contra ceptive pill	12	6	12	6
All of the above	7	3.5	3	1.5
No idea	50	25	0	0
Total	200	100	200	100

Other findings in our study revealed that education improved the knowledge of the respondents about the risk factors of hypertension. The proportion of respondents who did not have any idea of risk factors of hypertension reduced from 25% to 0%. Furthermore, many more of the respondents

understood better the risk of increasing age, association of family history, high salt intake, obesity and smoking in hypertension. This was reflected in their increase percentages post intervention.

The limitation of this study includes relatively small sample size and inability to prolong intervention duration longer than 3 months due to time constraints.

CONCLUSION

This study has shown that education and counseling on hypertension and its risk factors are useful strategies in curtailing the menace. Therefore, frequent health campaign and hypertension screening exercise at various wards the local government, market places and other institutions will go a long way in improving the health status of the community.

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