

NUTRITION TRANSITION AND INDICATORS OF HYPERTENSION AMONG FARMING HOUSEHOLDS IN NIGERIA: EVIDENCE FROM IKENNE LOCAL GOVERNMENT AREA OF OGUN STATE

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ABSTRACT

The close relationship between diet, lifestyle and heart related diseases such as hypertension, have been well established. This study assessed nutrition transition (NT) and indicators of hypertension among farming households in Ikenne Local Government Area of Ogun State, Nigeria. One hundred and ninety two households were selected using simple random sampling procedure. Descriptive statistics and the logit regression model were used in analyzing the data collected. Result obtained showed that majority of the farmers (87%) fall within the low income class and they spend more than 50 percent of their income on food. The respondents were mostly non- vegetarians (88%) and they all reported mild to high level transition in all the food classes considered in the study. The regression result showed that increases in family size ($p < 0.1$), level of education ($p < 0.01$), size of farm ($p < 0.05$), average income ($p < 0.01$) and decreases in gender (i.e female, $p < 0.01$), marital status (i.e single, $p < 0.01$) and farming activities ($p < 0.01$) will increase the probability of NT while, increases in age ($p < 0.10$), education ($p < 0.10$), incidence of NT ($p < 0.05$), average income ($p < 0.05$) and decreases in gender (i.e female, $p < 0.05$), farm size ($p < 0.01$) and farming activities ($p < 0.10$) will increase probability for hypertension risks (HR) among study population. The study recommends incorporation of health education into extension education. Furthermore, female farmers should be encouraged to go for periodic blood pressure check and enroll for counselling since high risk for hypertension is apparent among them. Finally government effort at ameliorating hypertension should be intensified in developing communities through media campaign.

Keywords: Nutrition transition, diet, hypertension, logit regression.

INTRODUCTION

Nutrition transition can be defined as marked by a shift away from diets of varying nutritional quality toward more varied diets that include more processed food, more foods of animal origin, more added sugar and fat and often more alcohol (Barry and Pelletier, 2001). It is a condition that is highly associated with urbanization and development (IFPRI, 2000). Food supplies and therefore the diets of economically developing countries are now generally in rapid transition. This nutritional transition is accompanied by equally rapid changes in levels of physical activity sedentary occupations; increased use of labour-saving devices at work and home; and changes in income profiles and body composition which in most cases lead to obesity (Barry and Pelletier, 2001; FAO, 2001). There is now enough evidence to propose a general theory of causally as well as chronologically linked demographic/nutritional/epidemiological transition. Put simply, the theory proposes that when populations face massive social and technological change that includes increasing urbanization as a key component, the pattern of their food supplies and therefore their diets, with associated factors, such as smoking and reduced physical

activities also changes; and, consequently, disease patterns also change (Surabhi, 2006). Popkin (2004) posited that obesity is a major risk factor for hypertension, this is why hypertension is becoming more and more the most important cardiovascular disease (CVD) of the urban households (Oguntona and Tella, 2002; Vanguard, 2008). According to the World Health Organization, worldwide, more than 1 billion adults are overweight, and 300 million are clinically obese. Even more disturbing are increases in childhood obesity, which lead to large increases in diabetes and hypertension. By 2001, CVD had become the number one cause of death worldwide with 80% of the burden occurring in developing countries (Gaziano, 2005). Many studies on epidemiological transition have shown that over the last 2 centuries, the industrial and technological revolutions and the economic and social transformations associated with them have resulted in a dramatic shift in the cause of death from infectious diseases and malnutrition before 1900 to hypertension and cancer (Gaziano, 2005). A global non-communicable disease (NCD) epidemic is rapidly evolving, with the burden of disease shifting. Twice as many deaths due to CVD now occur in developing countries as in developed countries. The vast majority of

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CVD can be attributed to conventional risk factors. Even in sub-Saharan Africa, high blood pressure, high cholesterol, tobacco and alcohol use, and low vegetable and fruit consumption are already among the top risk factors for disease (Mathers *et al.*, 2002; Gaziano, 2007). This bears direct implication on the quality and quantity of household labour supply and life expectancy especially in an agrarian economy such as Nigeria. Evidence from studies in developing countries revealed that hypertension significantly reduces farm productivity and resource-use efficiency (CBN, 2002)

Hypertension is said to occur when the blood pressure is above normal i.e. when systolic is above 140mmhg and diastolic is above 90mmhg (Waldron, 1982). Hypertension has been described as an emerging health problem in semi-urban areas in sub-Saharan Africa. Among all the several factors found to contribute to this emerging trend, poor diet has been estimated to be 87 percent, while environmental exposure and life style share the other 13 percent (Gaziano, 2007). Though hypertension may be hereditary, research showed that with good diet the victim might not suffer from it (Popkin, 2004). Unfortunately, like HIV/AIDS, hypertension is a silent killer and many do not consider themselves at risk as they transit to poor lifestyle diets consisting of food and snacks with high salt content, high saturated fats content and refined carbohydrate, cigarette smoking and alcohol consumption (Umeche, 2007). It is against this background that this paper examined the contribution of nutrition transition to accelerating the risk factors for hypertension especially among farming household.

MATERIALS AND METHODS

The study was carried out in Ikenne Local Government Area of Ogun State. Ikenne is a semi-urban area and predominantly a farming community. The population of inhabitants is approximately 74,000 people. (NBS, 2007) used for this study were mainly primary in nature. The primary data collected were used in line with the stated objectives.

One hundred and Ninety two farming household heads were interviewed with the use of structured questionnaire. The simple random sampling procedure was adopted in the selection of the sample for the study. The descriptive statistics and Logit regression procedure were used in analyzing the data collected. Following Gujarati (1998) the Logit model is specified as follows

$$\ln(P_i / (1 - P_i)) = \beta_0 + \beta_1 X_1 + \dots + \beta_n X_n + e_1$$

Where

P_i = Probability of nutrition transition, β_i = coefficients, X_i = independent variables, and e_1 = error term.

The independent variables, which describe the socio-economic characteristics of respondents, are described as follows:

$$Y = f(X_1, X_2, X_3, \dots, X_n, U)$$

Where

Y = incidence of nutrition transition (Incidence = 1, otherwise = 0,)

X_1 = educated (year)

X_2 = household size

X_3 = age of household (year)

X_4 = Farm size, (hectares)

X_5 = Income level (N)

X_6 = Other Occupation (Yes = 1 otherwise = 0)

X_7 = Marital Status (married = 1, otherwise = 0)

X_8 = Farming activities (passive = 1, vigorous = 0)

X_9 = Gender (female = 1, male = 0)

RESULTS AND DISCUSSION

Result according to Table 1 showed that majority of the farmers in the study area were female (69%). This is result may be adduced to the fact that there are more women than men in Ogun state (NBS, 2007). It also suggests that women usually respond more to health related studies. Majority of the respondents are married (76%) and average household size is between 5 and 7 which is slightly above national average which is about 4-5 (NBS, 2007). This indicates that the incidence of poverty is likely to be high among farming household. Literacy level was found to be low among respondents with majority having only primary education and below (69%). This has a lot of implication on the awareness level, and adoption of proper dietary and lifestyle principles among respondents. Majority of the farmers were into crop production (75%) and only 39 percent had other occupation besides farming. This implies that their major source of income was from farming activities. Most of the respondents earn between 20,000 and 30,000 nairas per month. This level of income vis a vis the household size, indicated moderate poverty level among respondents. This result is consistent with Dianam (2000); Akinbile and Ndagbu (2005). Majority of the respondents spent more than 50 percent of their income on food. The share of food in the total budget expenditure of household has a lot of implication on food insecurity and possible change in consumption pattern. This is consistent with Surabhi (2006) who posited, while affirming Engel's law, that poorer households spend higher percentage of their income on food. 43 percent of the respondent described their farming activity as vigorous while 39 percent had mild farming activity. The close gap in this result is an indication that with further urbanization, mechanization and modernization of agriculture, farming activities in the study area is likely to become less and less vigorous. This will largely contribute to reduction in energy requirement for work and overall shift in rural lifestyle. Majority of

the respondent are non vegetarian (88%). Non vegetarian diet posses higher risk for hypertension.

Table 1. Farmers Characteristics.

Characteristics	Frequency (n=192)	Percentage
Gender		
Male	60	31
Female	132	69
Education Level		
None	62	32
Primary	70	37
Secondary	48	25
Post secondary	12	6
Farm Size (Ha)		
<1- 1.5	110	57
1.6- 2	52	27
>2	30	16
Household Size		
≤4	38	30
5-7	86	44
>7	50	26
Marital Status		
Married	146	76
Single	46	24
Farm Type		
Crop	144	75
Livestock/poultry	48	25
Other Occupation		
Yes	74	39
No	118	62
Average Monthly Income(N)		
<20,000	34	18
20,000- 30,000	132	69
30,000- 40,000	20	10
>40,000	6	3
%age of Income Spent on food		
< 10	32	17
10- 30	24	13
30-50	42	25
50-70	56	29
> 70	32	17
Farming activities in past year		
Passive	6	3
Mild	74	39
Vigorous	82	43
Very vigorous	30	16
Diet group		
Vegetarian	22	12
Non- vegetarian	170	88

Source: field survey, 2008.

Following the classification of Barry and Pelletier (2001), respondents were grouped into 3 levels of transitions i.e non, mild and acute. Result according to Table 2 showed overall high incidence of transition in major diets. This predisposes the respondents to higher risks for nutritional diseases.

Table 2. Distribution of Farmers based on Nutrition Transition.

Level of Transition	Frequency	Percent
Staple Food		
None	40	21
Mild	70	37
Acute	82	43
Semi- Processed Food		
None	46	24
Mild	64	33
Acute	82	43
Fruits & Vegetables		
None	46	24
Mild	68	35
Acute	78	41

Source: field survey, 2008

Regression Results

Result according to table 3 showed that increases in family size ($p<0.1$), level of education ($p<0.01$), size of farm ($p<0.05$), average income ($p<0.01$) and decreases in gender (i.e female, $p<0.01$), marital status (i.e single, $p<0.01$) and farming activities ($p<0.01$) will increase the probability of nutrition transition (NT). The result showed clearly that large households size, which is an indicator of poverty and predominant in the study area (see Table 1) was an inducing factor for NT among the respondents. The positive relationship between education and NT is an indication that nutrition education has not been properly incorporated in the educational curriculum in the study area. The positive relationship between average income and NT is an indication that extra income earned by household motivates change of food type and not food quantity (mostly from less processed food to highly processed food). Again, this is as a result of poor nutrition information. The result clearly indicated that the probability for NT is more in female farmers and among unmarried respondents who tend to eat more outside the home. This result is consistent with Oguntona and Tella (2002) who posited that semi-urban women generally spent long hours away from home and often depend on street foods for their intake. This result has a lot of implications on agricultural production in the study area since majority of the respondents are female (see Table 1). The negative relationship between farming activities and NT is an indication that farmers who engage in other economic activities spend extra income on change of food type. Result according to Table 4 showed that increases in

age ($p < 0.10$), education ($p < 0.10$), incidence of NT ($p < 0.05$), average income ($p < 0.05$) and decreases in gender (i.e female, $p < 0.05$), farm size ($p < 0.01$) and farming activities ($p < 0.10$) will increase probability for hypertension risks (HR) among study population. This result implied higher probability for HR among older farmers in the study area. The positive relationship between education and probability for HR further strengthens the fact that health or nutrition education is not properly highlighted in the school curriculum in the study area. The positive relationship between NT and probability for HR confirmed the fact that NT (especially change of diet from less processed to more processed foods) predisposes farmers to hypertension risks. The result also indicated female farmers are more predisposed to HR this result is consistent with Umechi (2007) who posited that Nigerian women have higher chance of dying from heart related disease such as hypertension as compared to men. The negative relationship between farming activities and probability for HR confirms the fact that with reduced activities occasionated by agricultural modernization and urbanization, there is a reduction in the energy requirement of farmers thus extra food intake may result in obesity.

Table 3. Logit Regression for Determinants of Incidence of Nutrition Transition.

Variable	Standardized Coefficient	t. value
Constant	3.6509	0.0495**
Gender	-1.1606	0.0954***
Marital status	-2.2976	0.0650***
Family size	1.1803	0.0119*
Level of Education	0.8088	0.0533***
Size of farm	1.0022	0.0367**
Average income	0.1796	0.0688***
Farming activities	-0.7660	0.2373*

***Significant at 1% level; **Significant at 5% level
*Significant at 10% level

No of obs 96 Dep var = Incid of nutrition transition.
Source: Computed from Field Survey, 2008.

CONCLUSION AND RECOMMENDATIONS

The study focused on the incidence of nutrition transition and the pre-disposing factors of hypertension among farming household and its implication on farmers health and productivity in Ikenne Local Government Area, Ogun State. Based on the finding of this study, the following recommendations have been made for policy actions:

- More awareness programmes focussing on proper nutrition and lifestyle and its implication on hypertension should be incorporated into extension education for the farmers.

- Farmers, especially female, should be encouraged to do periodic blood pressure check since higher risk for hypertension is apparent among them.
- Government programmes encouraging NGOs and medical institution to carry out counselling on NCDs with special reference to hypertension, should be introduced.
- Health education should be included in schools curricula.

Finally government effort at ameliorating hypertension should be intensified in developing communities through media campaign.

Table 4. Logit Regression Analysis for Factors Predisposing Farmers to Hypertension Risks.

Variable	Coefficient	t-Value
Constant	0.4154	0.0968*
Gender	-0.1517	0.0282**
Age	0.2044	0.0567*
Farm size	-0.2959	0.0106***
Education	0.2084	0.0529*
Incident of nutrition transition	0.1152	0.0316**
Farming activities	-0.3501	0.0822*
Average income	0.2880	0.0181**

***Significant at 1% level; **Significant at 5% level
*Significant at 10% level

No of obs 96 Dep var = Hypertension Risk
Source: Computed from Field Survey, 2008.

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Received: Feb 19, 2010; Accepted: Dec 16, 2010