Consumers' Perception and Willingness to Pay For Vitamin A Fortified Gari in Ibadan Metropolis, Oyo State, Nigeria

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Abstract: The study was carried out to examine the consumers' perception and willingness to pay for vitamin A fortified gari in Ibadan metropolis, Oyo State. This was carried out by determining the awareness of consumers of the vitamin A fortified gari and estimating their willingness to pay using a contingent valuation method. A multistage random sampling technique was employed to select three local governments out of the 11 local governments in Ibadan and 200 respondents were randomly selected based on proportionate to size principle. Primary data were collected on socioeconomic variables, awareness level, and willingness to pay for vitamin A fortified gari from the respondents using a well-structured questionnaire. Methods of data analyses involved the use of descriptive statistics, and a logistic regression for the respondents sampled. 46.5% of respondents sampled were between 21 and 30 years while the average age was 35 years. The result revealed that 66% of the respondents were not aware of Vitamin A fortified gari. 64% of the respondents has post-secondary school education, 84% of the respondents were willing to pay for vitamin A fortified gari. 33.1% were willing to pay between N150 to N200 for vitamin A fortified gari. The logistic regression estimates show that amount willing to pay and minimum price willing to pay by the consumers significantly impacted on the probability of being willing to pay for vitamin fortified gari. It is recommended that policy that will increase awareness of vitamin fortified gari and enhance purchasing power of the consumers should be promoted.

Key words: Willingness to pay, Vitamin fortified, Awareness, perception

INTRODUCTION

Gari is an important staple food processed from cassava. It is generally perceived as a low cost food with low nutritional value especially vitamin A that is required for proper development of the body compare to other staple food like rice and beans. It is estimated that 70% of the cassava produced in Nigeria is processed into gari (Adeoti; Ayelegun and Oyewole, 2009). Gari is the most traded cassava product. The gari prices, therefore, are a reliable indication of the demand and supply of cassava (Onabalu, 2001).

Vitamin A is an essential micronutrient that is important for growth, development, immunocompetence and good vision. According to the 2001–2003 Nigeria Food Consumption and Nutrition Survey, the national prevalence of vitamin A deficiency (VAD) was estimated to be 29.5% among preschoolers and 13% among women of childbearing age. VAD is a major public health problem in Nigeria, where about 30 percent of children under five are vitamin A deficient (Maziya-Dixon et al., 2006). This pose a major threat to development and future of children in Africa especially Nigeria where a large percentage of the population is poor and mostly live in rural communities where gari is produced and widely consumed.

There have been several attempts by the Nigerian government and the multinational organizations to reduce hidden hunger and increase the nutritional contents of various food and promote healthy living among the populace of developing countries. Adequate nutrition is essential for the well-being of children and adults. In an attempt to increase the micronutrient density of cassava, breeding programmes worldwide have been initiated, with the development of yellow flesh cassava or provitamin A cassava (pVAC) in the forefront, which has higher total carotenoid contents and can be used to improve the vitamin A situation in cassava growing areas where there is a high prevalence of vitamin A deficiency (VAD). Hence, the need for biofortification which is

the process of breeding and delivering staple food crops with higher micronutrient content (Saltzman et al., 2013). With the promotion of vitamin A fortified cassava there is therefore a need to fill the knowledge gap in the consumers' level of awareness, perception and factors that determine willingness to pay for the staple food (gari) among many other processed products from the bio fortified cassava in Nigeria, especially in Ibadan metropolis considering its crucial role in food security of rural and urban households and its highly improved nutritional value as against the unfortified gari. It is in view of this that the study was carried out to examine the willingness to pay for gari in the study area. Specifically the study examine socio economic factors that influence consumers' willingness to pay for vitamin A fortified gari, consumers level of awareness, perception and mean willingness to pay for vitamin A fortified gari.

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MATERIALS AND METHODOLOGY

Structured questionnaire were administered to 200 respondents using multistage sampling technique. Descriptive statistics was used in determining the level of awareness of vitamin fortified gari, determinants of point of purchase, what they look out for in their purchase of gari, awareness about the economic and nutritional benefits of Vitamin A gari. Likert scale was used for identification of perception of consumers on Vitamin A fortified gari in comparison with other unfortified gari. Logit regression was used to explain the log-likelihood of willingness to pay for Vitamin A fortified gari.

$$P_i = E\{Y = 1 / X_i\} = \frac{1}{1+e^{-(\beta_0+\beta_i X_i)}}$$

Where P_i is a probability that $Y_i = 1$

P_i = price consumers are willing to pay for Vitamin A fortified gari

Y = Consumer's willingness to pay. '1' if willing to pay and '0' otherwise

B_o = is the intercept which is constant

$B_ı$ = is the coefficient of the price that the respondents are willing to pay for vitamin A fortified gari. Mean willingness to pay for Vitamin A fortified gari by respondents was used as given by Hanemann (1989). Whittington *et al.,* (1990), Branka and Kelly (2001), Yusuf *et al.,* (2005), Adepoju and Omonona (2009).

Mean WTP $= \frac{1}{/ ß1/} * \ln (1+\exp^{ß0})$

Where βo and βı are absolute coefficient estimates from the logistic regression and the Mean WTP is the mean for the vitamin A fortified gari by respondents.

To identify the factors that influence willingness to pay for vitamin A fortified gari by consumers, the respondents' responses to the WTP question was regressed against the prices the respondents were willing to pay and other socio economic characteristics of the respondents. The regression Logit model is specified as:

$$Y = \frac{1}{1 + exp^{z}}$$

Where Y is the responses of respondents willingness to pay which is either 1 for Yes or 0 for No.

$Z = ß_0 + ß_1 X_1 + ß_2 X_2 + \ldots\ldots\ldots\ldots + ß_{14} X_{14}$

βo is a constant

$\beta_1 \ldots\ldots\ldots \beta_{14}$ are the coefficient of the explanatory variables $X_ı \ldots\ldots X_{14}$

βo is a constant

$\beta_1 \ldots\ldots\ldots \beta_{14}$ are the coefficient of the explanatory variables $X_ı \ldots\ldots X_{14}$

These variables include:

X_1 = Household Size
X_2 = Age (in years)
X_3 = Educational level
X_4 = Occupation
X_5 = Sex (male=1, otherwise=0)
X_6 = Marital Status (married=1, 0 = otherwise)
X_7 = Awareness of vitamin A fortified gari (aware=1, 0 = otherwise)
X_8 = Household Income (Naira)
X_9= Work experience
X_{10}=Household working member
X_{11}=Amount willing to pay for fortified gari
X_{12}=Minimum amount willing to pay for fortified gari
X_{13}=Maximum amount willing to pay for fortified gari
ui = Error

RESULTS

The result revealed that 66% of the respondents were not aware of Vitamin A fortified gari. 64% of the respondents has post-secondary school education, 84% of the respondents were willing to pay for Vitamin A fortified gari. 33.1% were willing to pay between N150 (0.36 USD) to N200 (0.49USD) for vitamin A fortified gari. The logistic regression estimates show that amount willing to pay and minimum price willing to pay by the consumers significantly impacted on the probability of being willing to pay for vitamin A fortified gari. The empirical result showed that the mean willingness to pay is #39.8 (0.097USD). This suggests that the respondents on the average were willing to pay #39.8 (0.097USD) more for vitamin A fortified gari.

Determinant of Consumers' Willingness to Pay for Vitamin A Fortified Gari

	Coefficient	Z value	P value
Willingness to pay			
Age	- 0.0002596	-0.71	0.477
Sex	-0077377	-1.26	0.207
Marital Status	0.0046369	0.89	0.371
Household size	0.0014499	0.95	0.340
Education	-0.002068	-0.55	0.586
Major occupation	-0.0016257	-1.04	0.297
Monthly Income	-2.12e-06	-1.37	0.172
Work Experience	9.94e-06	0.02	0.982
Working member	-0.0016581	-0.65	0.515
Awareness of VFG	0.0017244	0.38	0.703
Amount willing to for VFG	0.0002974	3.41	0.001*
Minimum price for VFG	-0.0001643	-2.01	0.044**
Maximum price for VFG	-0.000024	-0.52	0.601
Log likelihood	-20.349479		
Chi-Square	28.70		
*Significant	1%		
**Significant	5%		

Source: Computation from field survey 2019

CONCLUSION

A fairly large proportion of the respondents were not aware of the vitamin A fortified gari and those aware of it got the awareness from family/relatives. Majority of the respondents have high perception of the gari with a sizable proportion of the respondents willing to pay for the gari. The study revealed that willingness to pay for vitamin A fortified gari is significantly influenced by the amount willing to pay and minimum price willing to pay for vitamin A fortified gari. The empirical result of the analysis of mean willingness to pay for vitamin A fortified gari is an indicator to the policy makers on price the consumers are willing to pay for vitamin fortified gari, above which willingness to pay will start declining.

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