

Prevalence of Nutritional Supplements Consumption among Literate Women in Tertiary Institutions in Ekiti State

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Abstract. Nutrition experts, health educators and enlightenment stake holders have discovered that the dietary supplement market is growing at alarming rate. The rate of consumption of the dietary supplements seems to be increasing on daily basis. The purpose of this study was to investigate the prevalence of nutritional supplements consumption and the perception of women in all tertiary institutions in Ekiti State, South Western Nigeria. Population for the study consisted of two hundred (200) literate women who were randomly selected from these institutions. 42% of the sample were academic women, while the remaining (58%) women were non-academic. Findings showed that majority of the respondents are of child bearing age, 25% of the women are 50 years and above. Structured questionnaire and interview were used to elicit information from the women. Data collected were analyzed using E-test and Person Product Moment Correlation analysis. Majority (87.5%) of the respondents consume nutritional supplements. Minority (12.5%) did not believe in the consumption of supplements. It is shown that the value of the coefficient of determination indicates that all the predictor variables jointly accounted for 89.9% of the total variance while 10.1% is due to unexplained variance. It was through an interview that some of the women using nutritional supplements revealed that they are not sure of the risks associated with the consumption of the products. There is a need for concerted efforts on the part of nutritionists and health educators to create more nutrition education awareness among people.

Key Words: Nutrients, Nutrition, Nutritionists, Health Educators, Experts

Introduction

Nutritional supplements according to Altamimi (2019) are any product intended to supplement the diet and that contains one or more dietary ingredients. They may include vitamins, minerals, herbs, meal supplements, and products that enhance nutrient levels. People consume nutritional supplements for many reasons, such as protecting against disease or health problems (e.g. stress, colds, heart attacks, osteoporosis, cancer, tooth decay and neural tube defects in infants), increasing energy, improving physical performance and correcting various lifestyle deficiencies. As such, there are a number of types of supplements, such as those that compensate for inadequate daily dietary intake, those that help with accelerate weight loss, and those that improve the ability to gain weight and muscle. Nutritional supplements provide concentrated nutrients to prevent, alleviate, enhance or influence physiological processes within the body.

Nutritional supplements are substances used to add nutrients to the diet or to lower the risk of health problems like obesity, osteoporosis or arthritis. Nutritional supplements could come in form of pills, capsules, powders, gel, tablets extracts or liquids. They sometimes contain vitamins, minerals, fiber, amino acids, herbs or other plants or enzymes. Sometimes, the ingredients in dietary supplements are added to foods, including drinks. A doctor's

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prescription is not needed to buy nutrition supplements hence the reason why it is abused as people just used the supplements indiscriminately. At times as handed over from friends or relatives. According to National Institute of health (2017) eating a variety of healthy foods is the best way to get the nutrients needed by the body for healthy growth and developments. Lucas and Gilles (2007) discovered that some people don't get enough vitamins and minerals from their daily diet, this leads to seeking for nutritional supplements.

Nutritional supplements may provide the missing nutrients in the daily diet. Lucas and Gilles (2007) posited that it might be difficult to improve the nutritional status of the population or individuals without the use of nutritional supplements except if there is increase intake of foods rich in iron and protein and this may be unachievable where food rich in iron and protein are expensive.

Also, increase in intake of absorption enhancers like (vitamin C rich fruits and vegetables) and decreasing intake of absorption inhibitors (e.g not drinking tea with meals), giving supplements of iron, others with folic acid to priority groups (i.e women of reproductive age particularly pregnant and post partum women and young children especially those with low-birth weight. Observations show that all women of reproductive age, children, adolescent (especially girls) and vulnerable old people need supplements especially in the tropical region like Nigeria and Ekiti-State where malaria is endemic.

Recent research revealed that nutrition supplementation program has been in existence for many years, although many people are not sure of the benefits and risks associated with these nutritional supplements. U.S food and drug administration centre (2017) discovered that eating a variety of healthy foods is the best way to get the nutrients needed. Most people do not need to take nutritional supplements as they can get all the vitamins and minerals they need from eating healthy and balanced diet. Vitamins and minerals such as iron, calcium and vitamin C which are essential nutrients that the body needs in small amount for effective and healthy living.

However, many people fall short of this standard, this may make their doctors to recommend nutritional supplements. The National Centre for Complementary and Integrated Health (2017) posited that there is need to find out whether you really need nutritional supplement or not. Research showed that usually nutritional supplements are usually not prescribed by doctors, nutritionist or health educators as many people get information from friends, neighbor or someone suggesting it to another person. Others heard online or on TV adverts. The introducers would try to convince the consumers that it will make them healthy and feel better, it will keep them from getting sick and increase longevity. The researchers discovered that nutritional supplements consumers are on their own as there is no scientific research supporting these findings. Observation shows that the financial implications of nutritional supplements are much, others may be harmful to the system or they might not be helpful, hence the need to seek counsel from a nutritionist, health educator or medical doctor before the use of any nutritional supplements to be on the safer side. To ascertain the safety of nutritional supplements, the U.S food and drug administration (FDA) are working on this as they do not have authority over dietary supplement. The Federal government does not test the contents of nutritional supplement and drug companies are not allowed to share information on the safety of a dietary supplement before selling it. Hence the need for this study to find out the prevalence of nutrition supplements consumption among literate women in tertiary institutions and the implications on health and longevity. The reasons for nutritional supplement consumption are not far-fetched (Ukegbu, 2014).

Health educators should be aware that people seek specific health benefits from nutritional supplements and drinks which may be better achieved through appropriate consumption of a nutritious diet. Health education programme should incorporate the

perceptions, aspirations and motivations of young people into the planning of interventions and activities in order to make them most relevant and effective.

Methodology

Study design, data collection and data analysis. The study adopted descriptive research design of cross sectional survey type. The descriptive research design was considered appropriate because it ascertains the prevailing condition and better description of the respondents disposition using the questionnaire.

Instrument for Data Collection

A self-constructed questionnaire titled prevalence of Nutritional supplements consumption on the health of literate women in Tertiary Institutions in Ekiti State Nigeria. Face and content validity were ascertained by nutritionist and Health educators from the four Universities and one polytechnic sampled.

Data Analysis

A reliability co-efficient of 0.85 was obtained using test re-test. Data collected were analyzed with descriptive statistics of frequency counts, mean and inferential statistics. Hypothesis generated was tested using Pearson Product Moment Correlations analysis at 0.05 level of significance.

Results

Table 1: Socio-demographic Characteristics of the Study Participants

	Grouping	Frequency	Percentage
Institution	EKSU	46	25.4
	ABUAD	38	21.0
	FUOYE	28	15.5
	Federal poly	35	19.3
	BOUESTI	34	18.8
Occupation	Academic staff	77	42.5
	Non-academic	85	47.0
	Admin staff	19	10.5

Table 1 captures the socio-demographic characteristics of the study participants. The result shows that about one-quarter of the total sample (25.4%); representing the majority were drawn from EKSU, closely followed by ABUAD (21%), Federal Polytechnic (19.3%), and BOUESTI (18.8%) while the least was FUOY (15.5%). Distribution according to occupation shows that majority of the respondents (47%) were non-academic staff members while 42.5% and 10.5%) represented academic and administrative staff respectively.

Analysis of Research Questions

Question 1: What are nutritional supplements?

Table 2: Nutritional Supplements

S/N	STATEMENT	S/A	A	D	S/D	MEAN	SD
1	Nutritional supplements are mostly consumed by women	69 (38.1%)	69 (38.1%)	30 (16.6%)	13 (7.2%)	3.07	0.91
2	They are used mainly to cure diseases and sickness	45 (24.9%)	74 (40.9%)	43 (23.8%)	19 (10.5%)	2.80	0.93

3	Nutrition supplements are products that contain one or more dietary ingredients	83 (45.9%)	89 (49.2%)	7 (3.9%)	2 (1.1%)	3.40	0.62
4	You can take as many nutritional supplements as possible daily	27 (14.9%)	63 (34.3%)	74 (40.9%)	18 (9.9%)	2.54	0.87

Table 2 presents the meaning of nutrition supplements. The result indicates that 38.1% of the total sample strongly agreed that nutritional supplements are mostly consumed by women, 38.1% respondents agreed, 16.6% disagreed while 7.2% strongly disagreed. About one-quarter of the sample participants (24.9%) strongly agreed that nutrition supplements are used mainly to cure diseases and sickness, 40.9% agreed, 23.8% disagreed and 10.5% strongly disagreed. On whether nutritional supplement are products that contains one or more dietary ingredients, more than one-third the total sample (45.9%) strongly agreed, 49.2% agreed, 3.9% disagreed while 1.1% strongly disagreed. Regarding daily consumption of many nutritional supplements as possible, 14.9% respondents strongly agreed, 34.3% agreed, 40.9% disagreed while 9.9% strongly disagreed. Using a cut mean score of 2.50 for the rating scale, all the items had mean scores above the cut-off point. This implies that nutritional supplements are products that contains one or more dietary ingredients; mostly consumed by women to cure diseases and sickness.

Question 2: What are the perceived influence of nutritional supplements on the consumers?

Table 3: Perceived influence of nutritional supplements on the consumers

S/N	STATEMENT	S/A	A	D	S/D	MEAN	SD
1	Nutritional supplements has made me free from diseases and sickness	38 (21.0%)	77 (42.5%)	49 (27.1%)	17 (9.4%)	2.75	0.89
2	It has also improved my personal immunity	47 (26.0%)	112 (61.9%)	18 (9.9%)	4 (2.2%)	3.12	0.66
3	Nutritional supplements provide all my dietary requirements	30 (16.6%)	50 (27.6%)	84 (46.4%)	17 (9.4%)	2.51	0.88
4	Some dietary supplements are commonly used during illness or injury	53 (29.3%)	95 (52.5%)	24 (13.3%)	9 (5.0%)	3.06	0.79
5	Nutritional supplements can cure chronic diseases like hypertension and diabetes	36 (19.9%)	65 (35.9%)	56 (30.9%)	24 (13.3%)	2.62	0.95
6	Nutritional supplement prevent aging process in elderly women	43 (23.8%)	91 (50.3%)	39 (21.5%)	8 (4.4%)	2.93	0.79
7	Nutritional supplements increases mental alertness and concentration	36 (19.9%)	109 (60.2%)	27 (14.9%)	9 (5.0%)	2.95	0.74
8	Most of the nutritional supplements are not very effective	17 (9.4%)	62 (34.3%)	72 (39.8%)	30 (16.6%)	2.36	0.87

9	Nutritional supplements has short term usefulness and requires continuous use	34 (18.8%)	91 (50.3%)	47 (26.0%)	9 (5.0%)	2.83	0.79
10	The cost of purchasing the supplements are very expensive	74 (40.9%)	67 (37.0%)	34 (18.8%)	6 (33.3%)	3.15	0.84
11	There are risks associated with the use of dietary supplements.	30 (16.6%)	72 (39.8%)	55 (30.4%)	24 (13.3%)	2.64	0.92

Table 3 presents the perceived influence of nutritional supplements on the consumers. The result shows that, using a cut-off mean score of 2.50 for the rating scale; all the items had mean scores above the cut-off point. This implies that the perceived influence of nutritional supplements on the consumers include: cure for diseases and sickness, improved personal immunity, supply of dietary requirements, prevention of aging process in elderly women, increased mental alertness and concentration, short-term usefulness and requires continuous use, expensive and these are risks associated with the use.

Hypothesis 1: There is no significant difference between the consumption of nutritional supplements among literate women in tertiary institutions in Ekiti State, Nigeria.

Table 4: ANOVA showing consumption of nutritional supplements among literate women in tertiary institutions

Source	SS	df	MS	F	p
Between Groups	441.737	4	110.434	4.432*	0.002
Within Groups	4385.744	176	24.919		
Total	4827.481	180			

Note: * $p < 0.05$

Table 4 shows that the computed F-value (4.432) with degrees of freedom 4 and 176 is significant at $p < 0.05$ level of significance for the groups. The null hypothesis is rejected. This implies that there is significant difference between the consumption of nutritional supplements among literate women in tertiary institutions in Ekiti State, Nigeria. In order to locate the sources of significant difference among the groups, Scheffe Posthoc test was used as depicted in Table 5.

Table 5: Scheffe Posthoc showing consumption of nutritional supplements among literate women in tertiary institutions

(I) institutions	(J) institutions	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
EKSU	ABUAD	.67391	1.09429	.984	-2.7328	4.0807
	FUOYE	-.25466	1.19653	1.000	-3.9797	3.4704
	FEDERAL POLY	-3.21180	1.11968	.088	-6.6976	.2740
	BOUESTI	-2.73785	1.12899	.213	-6.2526	.7769
ABUAD	EKSU	-.67391	1.09429	.984	-4.0807	2.7328
	FUOYE	-.92857	1.24327	.967	-4.7991	2.9420

	FEDERAL POLY	-3.88571*	1.16950	.029	-7.5266	-.2448
	BOUESTI	-3.41176	1.17842	.083	-7.0804	.2569
FUOYE	EKSU	.25466	1.19653	1.000	-3.4704	3.9797
	ABUAD	.92857	1.24327	.967	-2.9420	4.7991
	FEDERAL POLY	-2.95714	1.26568	.248	-6.8974	.9831
	BOUESTI	-2.48319	1.27392	.437	-6.4492	1.4828
FEDERAL POLY	EKSU	3.21180	1.11968	.088	-.2740	6.6976
	ABUAD	3.88571*	1.16950	.029	.2448	7.5266
	FUOYE	2.95714	1.26568	.248	-.9831	6.8974
	BOUESTI	.47395	1.20203	.997	-3.2682	4.2161
BOUESTI	EKSU	2.73785	1.12899	.213	-.7769	6.2526
	ABUAD	3.41176	1.17842	.083	-.2569	7.0804
	FUOYE	2.48319	1.27392	.437	-1.4828	6.4492
	FEDERAL POLY	-.47395	1.20203	.997	-4.2161	3.2682

Note: *. The mean difference is significant at the 0.05 level

Table 5 presents the difference in the consumption of nutritional supplements among literate women in tertiary institutions. The result shows that there is statistical significant difference in consumption of nutritional supplements among literate women in ABUAD and Federal Polytechnic at 0.05 level of significance.

Hypothesis 2: There is no significant contribution of perceived factors to the consumption of nutritional supplements among literate women in tertiary institutions in Ekiti State, Nigeria.

Table 6: Multiple Regression Analysis showing the contributions of perceived factors to consumption of nutritional supplements among literate women in tertiary institutions in Ekiti State

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta (β)		
(Constant)	5.609	1.088		5.153	.000
X ₁	1.668	.166	.288	10.029	.000
X ₂	1.104	.228	.141	4.851	.000
X ₃	1.160	.182	.197	6.369	.000
X ₄	1.515	.185	.231	8.204	.000
X ₅	1.351	.159	.248	8.511	.000
X ₆	.952	.179	.146	5.311	.000
X ₇	1.370	.209	.196	6.567	.000
X ₈	1.109	.161	.186	6.892	.000
X ₉	.784	.195	.119	4.014	.000
X ₁₀	1.174	.171	.191	6.863	.000
X ₁₁	.998	.162	.177	6.161	.000
Multiple R=0.948, Multiple R ² =0.899, Adjusted R ² =0.892, F _{11,169} =136.802					

Note: *p<0.05

Cursory look at Table 6 shows that there is significant contribution of perceived factors to the consumption of nutritional supplements among literate women in tertiary institutions in Ekiti State, Nigeria (F_{11,169}=136.802, p<0.05). The null hypothesis is rejected.

Hypothesis 3: Occupation will not significantly influence the consumption of nutritional supplements among literate women in tertiary institutions in Ekiti State, Nigeria.

Table 7: ANOVA showing consumption of nutritional supplements among literate women in tertiary institutions in Ekiti State, Nigeria by occupation

Source	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	5.399	2	2.699	0.100	0.905
Within Groups	4822.082	178	27.090		
Total	4827.481	180			

Note: $p > 0.05$

Table 7 shows that the computed F-value (0.100) with degrees of freedom 2 and 178 is not significant at $p > 0.05$ level of significance for the groups. The null hypothesis is not rejected. This implies that occupation will not significantly influence the consumption of nutritional supplements among literate women in tertiary institutions in Ekiti State, Nigeria.

Discussion

The result obtained so far implies that the perceived factors jointly provide a significant explanation for the variation in the consumption of nutritional supplements among literate women in tertiary institutions in Ekiti State, Nigeria. The table shows that there is a significant positive multiple correlation between the predictor variables (prevention of diseases and sicknesses, improved personal immunity, provision of dietary requirements, used during illness or injury, cure chronic diseases like hypertension and diabetics, prevent aging process in elderly women, increase mental alertness and concentration, increased effectiveness, requires continuous used due short term usefulness, high cost of purchasing and risk associated with the use) and consumption of nutritional supplements among literate women in tertiary institutions ($R = 0.948$, $p < 0.05$). This implies that all the predictor variables are factors that can exert influence on consumption of nutritional supplements among literate women in tertiary institutions in Ekiti State. The value of the coefficient of determination indicates that all the predictor variables jointly accounted for 89.9% of the total variance in consumption of nutritional supplements among literate women in tertiary institutions while the remaining 10.1% unexplained variation is largely due to other variables not included in the study that can account for the consumption of nutritional supplements among literate women in tertiary institutions in Ekiti State, Nigeria.

Taking the absolute value of the regression coefficient, the regression result in the table reveals that the single best predictor of consumption of nutritional supplements among literate women in tertiary institutions in Ekiti State, Nigeria is prevention of diseases and sicknesses ($\beta = 0.288$). This is closely followed by cure chronic diseases like hypertension and diabetics ($\beta = 0.248$), used during illness or injury ($\beta = 0.231$), provision of dietary requirements ($\beta = 0.197$), increase mental alertness and concentration ($\beta = 0.196$), , increased effectiveness ($\beta = 0.186$), risk associated with the use ($\beta = 0.177$), high cost of purchasing ($\beta = 0.171$), prevent aging process in elderly women ($\beta = 0.146$), improved personal immunity ($\beta = 0.141$) while continuous used due to short term usefulness ($\beta = 0.119$) is the least contributor to consumption of nutritional supplements among literate women in tertiary institutions in Ekiti State, Nigeria. The regression model and equation showing the multiple relationships between the dependent and independent variables can therefore be given as follow:

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + b_7X_7 + b_8X_8 + b_9X_9 + b_{10}X_{10} + b_{11}X_{11}$$

$$Y = 5.609 + 1.668X_1 + 1.104X_2 + 1.160X_3 + 1.515X_4 + 1.351X_5 + 0.952X_6 + 1.370X_7 + 1.109X_8 + 0.784X_9 + 1.174X_{10} + 0.998X_{11}$$

Where

Y	=	Consumption of nutrition supplements among literate women in tertiary institutions
X ₁	=	Prevention of diseases and sicknesses
X ₂	=	Improved personal immunity
X ₃	=	Provision of dietary requirements
X ₄	=	Used during illness or injury
X ₅	=	Cure chronic diseases like hypertension and diabetics
X ₆	=	Prevent aging process in elderly women
X ₇	=	Increase mental alertness and concentration
X ₈	=	Increased effectiveness
X ₉	=	Continuous used due short term usefulness
X ₁₀	=	High cost of purchasing
X ₁₁	=	Risk associated with the use
b _i	=	(i=1-11) Regression Weight Coefficients
a	=	Constant (other variables other than X ₁ X ₁₁)

Conclusion and Recommendations

Conclusion was drawn on the fact nutritional supplements as gathered from the findings are mostly consumed by literate women in our society and has reached an alarming rate in Nigeria than that of other countries. The people involved used the supplements for health benefits to prevent aging and other aesthetic reasons like using them to cure diseases and sickness, improved their personal immunity, supply of dietary requirements and to increase their mental alertness and concentration but could not seriously account for the benefits of these supplements. Those using the supplements are also unsure of the risks associated with the nutritional supplements.

This calls for concerted efforts on the parts of the nutritionists and health educators to create more awareness for the populace on the need to ascertain the type of supplements to use and the benefits. Safe practices should be ensured by public health officers and regulating bodies of the consumed nutrients to ensure the safety and also the beneficial effects on the body of the consumers.

Limitation of the Study

The study was carried out in five Tertiary Institutions in Ekiti State. The findings cannot be generalized to all other Tertiary Institutions in Nigeria. However the objective of the study were met as adequate data was generated.

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References

- AITamimi, J. Z. (2019). Awareness of the consumption of dietary supplements among students in a university in Saudi Arabia. *Journal of Nutrition and Metabolism*, 2019, 4641768.
- National Centre for complementary and Integrative Health (2017). info@nccih.nih.gov. www.tcch.min.gov
- Office of Dietary Supplements (2017). National institute of Health. www.ods.od.nih.gov
- U.S Food and Drug Administration Centre for Food Safety and Applied Nutrition (2017) <https://www.fda.gov/about-fda/fda-organization/center-food-safety-and-applied-nutrition-cfsan>
- Ukegbu, P.O. (2014). A study of the Nutritional Status and Dietary Intake of Lactating Women in Umuahia, Nigeria. *American Journal of Health Research*, 2(1) 20-26.
- UNICEF (2011). An Overview of Nutritional Status of Nigerians; presentation at a seminar. "High Quality Proteins; the Missing Link in Development".