

# Influence and Consumption Pattern of Dairy Products on Nutritional and Health Development of School-aged Children in Ekiti Local Government Area of Kwara State, Nigeria

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## Abstract

This study examined the consumption pattern of dairy products among school-aged children in Ekiti local government of Kwara State, Nigeria. A questionnaire was used to elicit information from the students and multistage sampling technique was used to select 120 children. The 54 primary schools in the study area were stratified into 20 strata on the basis of the village demarcation in the study area. 6 pupils between primary five and six were randomly selected from each of the 20 schools. Frequency distributions, percentages and means were calculated. Pearson product moment correlation (PPMC) test was used to determine the relationship between some selected socio-economic characteristics of the respondents and their milk consumption frequency. Findings revealed that respondents' preference for dairy consumption was more of milk alone and at other times combined with pap or beverages. Cheese, yoghurt and powdered milk were the most available dairy products. Also affordability was identified as the major constraint influencing the consumption of dairy products. The results further revealed significant relationship between dairy product consumption and house-hold size and position in examination of respondents. Therefore, the study recommends the introduction of nutritional education and school milk-programme to be sponsored by government and other stakeholders.

*Keywords:* Influence; consumption pattern; dairy products; development; school-aged; children

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## 1.0 INTRODUCTION

Dairy products occupy important position in human diet and could be said to be the most complete food item because of its significant biological value as it contains a variety of nutrients which help make it nature's most nearly perfect food. In Nigeria, the consumption of milk and other dairy products is growing rapidly (FAO, 2003) as the country's diet becomes more westernized. Patterns of food consumption are influenced by economic, geographic and social factors. At the household level dairy consumption pattern is defined in respect of the types, quantities and frequencies. The consumption pattern of a household is the combination of qualities, quantities, acts and tendencies characterizing a community or a human group's use of resources for survival, comfort and enjoyment (Ahmed 2006). Consumption pattern also depicts the level of welfare and poverty that a nation is experiencing (Ahmed, 2006).

Generally, people select and eat foods which have pleasurable taste in their mouth. Nutrition is perhaps the most important problem facing the poor people in the world today. In spite of the progress made in improving nutrient availability in the last decade, a large proportion of poor households in developing countries still have inadequate access to sufficient food (Abdulai and Aubert, 2004). Mal-nourished children also have lifetime disabilities and weakened immune systems (Ezekwe, 2008). Inadequate consumption of protein and energy as well as deficiencies in key micronutrient such as iodine, vitamin A and iron are also key factors in the morbidity and mortality of children and adults. Therefore, the consumption of dairy products would not only reduce morbidity and mortality rates, but also augment nutritional imbalance in both children and adults. The consumption of food items depend on consumer preference, consumer's income, population size, and price of the product, price of substitutes and availability of the product. Increasing population growth, rising real income and decreasing consumer prices are the major factors that increase the demand for food such as dairy products (Ahmed et al., 2004). The demand for animal protein among rural communities in Nigeria is increasing on a daily basis. Malnutrition in the early years of life during which child's brain undergoes rapid growth can have a serious negative effect on intellectual development of a child. This situation could damage the central nervous system through its deleterious effects on responsiveness to stimuli and interference with learning (Akinmokun, 1989). Milk and milk products provide 15 essential nutrients for normal growth and the maintenance of good health would help make up for the nutrients that many citizens miss through their diets that are composed largely of carbohydrates. As a result, increased milk consumption would be necessary as Nigeria strives to attain the Millennium Development Goals (Omoyele, 2011). Milk has evolved into a meal or snack for children; this forms various patterns for milk consumption and hence tremendous potential for future growth for milk consumption among Nigerians.

Improving human nutrition plays an important role to achieve food security and dairy products have a unique contribution to nutritional status as well as health status of the smallholder household members (Kassahun 2009). Nutrition has a great impact on every nation's growth especially as we can see in the Nigerian situation (Ezekwe, 2008). It has also been established that dairy products have a unique contribution to nutritional status as well as health status of the smallholder households (Kassahun, 2009). It can therefore be argued that good nutrition raises returns on investment in education and health care as it has been declared that a healthy nation is a wealthy nation. In view of this concern, this study sought to investigate the consumption pattern of dairy products, as well as, determine the influence of dairy consumption on the health and nutritional status of primary school-aged children. In an attempt to achieve this, the study sought to find answers to the following research questions; describe the socio-economic characteristics of pupils in primary school, identify the available dairy products in the study area, examine the consumption pattern of dairy products among the respondents, and investigate the constraints militating against the consumption of dairy products in the study area. The study also made a proposition and tested for the hypothesis.

### **Hypothesis Testing**

H<sub>01</sub> There is no significant relationship between some selected socio-economic characteristics of the respondents and their frequency of dairy product consumption in the study area.

### **Materials and Methods**

This study was carried out in Ekiti Local Government Area (LGA) - one out of the sixteen LGAs of Kwara State, Nigeria. This is because the area is one of the typical rural areas of the State where milk processors are found in large numbers. The primary ethnic group of the inhabitants of this area is Yoruba, while Fulani, and Bororo are the minorities. The location of the state supports the growth of a number of grasses and pasture legumes, which allow the widespread rearing of cattle in the area. The population of the study comprised all primary school pupils between primary five (5) and six (6) in the study area because the pupils in the earlier classes are too young to be subject of rigorous research. Data for the study were obtained through a three-stage sampling technique. In the first stage, the whole primary schools in the study area comprising 54 schools were stratified into 20 strata on the basis of the community demarcation of the area. The communities are; Osi, Oke-opin, Epe-opin, Isare-opin, Idera-opin, Aare-opin, Isolo-opin, Ikerin-opin, Etan, Araromi-opin, Ajuba, Owaatun-opin, Isapa, ilubu, Obbo-ile, Obbo-aiyegunle, Ora-obbo, Eruku, Isanlu, Koro. In the second stage, one school was randomly selected from the list of schools in the community. In the third stage, six pupils in primary five (5) and six (6) were randomly selected from the selected schools making a total sample of 120 pupils in the study. Questionnaire was used to elicit information from the 20 respondents by soliciting the support of their teachers who assisted in distributing the questionnaire. Data for the study was analysed through simple frequency and percentages and Pearson product Moment Correlation.

## **■2.0 RESULTS AND DISCUSSIONS**

### **Socio-economic Characteristics of Respondents**

The results show that about half (51.7%) of the respondents were females while the rest (48.3%) were males (Table 1). Respondents indicated ages ranging between 10 and 17 years, with the mean age being 13 years. This implies that children are usually enrolled into primary schools a little later than eight years and they grow up to adolescent age before leaving primary school. The table showed further that 60.8% of the respondents were from household of 3-6, 30.0% of them came from families with 7-10 size, 6.66% of them indicated 11-14 household size while the remaining 2.50% of them had 15-18 household size. The average household size is 7 persons which is typical of a rural community in Nigeria. Less than half (46.6%) of the respondents were in class 5 while 53.3% were in class 6. Table 1 also showed that 38.3% of the respondents' father and 41.6% of their mother attained secondary level of education which implies that most of the respondents' parents had a reasonable level of educational exposure. Education brings about knowledge and awareness. It also reduces the level of conservatism and traditionalism. Hence, people of high level of education are more likely to give proper guidance on the choice of food that could promote healthier living among children (French 2002).

**Table 1** Socioeconomic characteristics of respondents

Variables	Frequency (n=120)	Percentage (%)	Mean
<b>Gender</b>			
Male	58	48.3	
Female	62	51.7	
<b>Age(Years)</b>			
10-12	49	40.8	13yrs
13-14	52	43.3	
15-16	18	15.0	
17 and above	01	0.83	
<b>Household Size</b>			
3-6	73	60.8	
7-10	36	30.0	7 persons
11-14	08	6.66	
15-18	03	2.50	
<b>Class of respondent</b>			
5	56	46.6	
6	64	53.3	
<b>Position in last examination</b>			
1 <sup>st</sup>	6	5	
2 <sup>nd</sup>	12	10	
3 <sup>rd</sup>	11	9.2	
≥4 <sup>th</sup>	91	75.8	
<b>Father's level of education</b>			
Non-formal education	18	15.0	
Primary education	15	12.5	
Secondary education	49	40.8	
Tertiary education	38	31.7	
<b>Mother's level of education</b>			
Non-formal education	20	16.6	
Primary education	28	23.3	
Secondary education	50	41.6	
Tertiary education	22	18.3	

Source: Field survey, 2013

### Available Dairy Products in the Study Area

The results in Table 2 showed the multiple responses of the pupils in the study area in which 91.7% of them were conversant with cheese, 86.7% of them were familiar with Yoghurt, 90.0% of them were also familiar with powdered milk while only 51.7% indicated their familiarity with evaporated milk. This implies that the respondents are familiar with all the available dairy products except evaporated milk whose multiple responses were low. The extent of awareness of the respondents to dairy products in their domain could be as a result of their ability or inability to afford dairy products. For instance, it could be that the respondents' parents are not financially capable of buying evaporated milk as this tends to be more expensive. This may be attributed to the poverty level of people in the area as it was observed by IFAD (2012) that 70% of Nigerians live on less than 1.25US dollar a day.

**Table 2** Distribution of available dairy products

Dairy products	Frequency	Percentage
Cheese 110		91.7
Yoghurt 104		86.7
Powdered milk 108		90.0
Evaporated milk 59		49.2

Source: field survey 2013 (Multiple responses)

### Consumption Pattern of Dairy Products among Respondents

As presented in Table 3, the distribution of respondents on the basis of their consumption pattern of dairy product showed that 36.8% of them consumed milk only, 30.8% of them consumed milk with palp, 25.5% with beverages, 0.6% combined with oat while the remaining 6.2 % of the respondents only consumed milk with medicine as may be prescribed by physicians particularly when the respondents undergo medical therapy to suppress certain ailments.

**Table 3** Consumption pattern of dairy products in the study area

Consumption pattern of dairy products	Frequency	Percentage
Milk + pap	99	30.8
Milk + beverages	82	25.5
Milk + oat	02	0.6
Milk only	118	36.8
Milk + medicines	20	06.2
Total	321	100

Source: Field survey 2013

### Frequency of Dairy Products Consumption among Respondents

Table 4 showed the frequency of respondents' consumption of dairy products in the study area. This is grouped into daily, weekly, monthly, yearly and never with a scoring order of 1 to 5 where daily assumes the highest score of 5 and Never takes the least score of 1. This scoring was used to arrive at the mean scores and the rankings as shown on the table. The figures captured in brackets are the percentages of the respondents based on frequency of consumption of dairy products. A respondent admitted not to have consumed any of the dairy products before. Powdered milk was ranked 1<sup>st</sup> constituting a mean of 4.9, yoghurt 2<sup>nd</sup> with mean 4.07, cheese 3.92 was ranked 3<sup>rd</sup> lastly evaporated milk's mean was 3.45 and was ranked 4<sup>th</sup>. This means that a higher percentage of respondents took powdered milk regularly and some few took evaporated milk. This may be due to affordability based on the amount of parents' incomes.

**Table 4** Frequency of dairy products consumption in the study area

Dairy products	Daily	Weekly	Monthly	Yearly	Never	Mean score	Rank
Powdered milk	26(24.1)	66(61.1)	16(14.8)	-	-	4.09	1 <sup>st</sup>
Yoghurt	24(23.1)	64(61.5)	16(15.4)	-	-	4.07	2 <sup>nd</sup>
Cheese	18(16.4)	67(60.9)	25(22.7)	-	-	3.92	3 <sup>rd</sup>
Evaporated milk	3(5.1)	23(39.0)	33(55.9)	-	1 (1.67)	3.45	4 <sup>th</sup>

Source: field survey 2013

### Constraints to Milk Consumption

Table 5 shows the factors that influence the consumption. Affordability and availability were the most important constraints to dairy products consumption making up to 59.2% and 36%. About 1.5% of the respondent was of the opinion that hygiene (the environmental condition where some of these products are processed, the equipment used, cleanliness of the water they use and neatness of the people who process them), is the reason for not taking certain dairy products while 0.3% of the respondents had problem with techniques of preservation of some of the products. This result is based on multiple responses.

**Table 5** Constraints to milk consumption in the study area

Constraints to dairy consumption	Frequency	Percentage
Availability	73	36.0
Affordability	119	59.2
Preservation techniques	6	0.3
Hygiene	3	1.5

Source: field survey 2013

### Hypotheses of the Study

H<sub>01</sub> There is no significant relationship between some selected socio-economic characteristics of the respondents and their frequency of dairy product consumption.

**Table 6** Pearson Product Moment Correlations (PPMC) Table

VARIABLE	COEFFICIENT(r)	P-VALUE	REMARK
Age	0.022	0.094	Not Significant
House-hold size	-0.262	0.045	Significant
Position in last examination	-0.0279	0.032	Significant

Correlation is significant at the 0.05 level

Source: field survey 2013

Pearson product moment correlation analysis revealed that house-hold size and position in last examination of the respondents were significantly related to their dairy product consumption. This implies that household size influences the amount of dairy products consumed by the respondents. It is without prejudice, therefore to conclude that less populated households are more likely to meet their dairy products needs than the densely populated families. The analysis also showed that high consumption of dairy products could result in higher academic

achievements of the pupils. It was observed that the students who consumed milk on a more regular basis (high consumption rates of dairy products) performed more brilliantly than the others. This became evident as the pupils who consume dairy products more regularly tend to excel in examinations as shown in their positions (Table 1).

### ■3.0 CONCLUSION

The study concludes that taking dairy products enhance high academic performance and promotes better understanding in children of ages 8-17 years. It is important to reiterate the findings from consumption pattern of dairy product among school-aged children. The largest share of respondents indicated that cheese, yoghurt and powdered milk are the most available dairy products that needed to be taken frequently to enhance high academic performance in school-aged children. The respondents in this study either took milk alone or combined it with pap or beverages at other times. It was further found that the constraint to dairy product consumption by the respondents is owed largely to affordability issue.

The study therefore, offers a number of implications. Given that consumers generally prefer purchasing dairy products such as cheese, yoghurt and powdered milk due to affordability and availability, people should be encouraged to produce these products as a way of solving unemployment and ultimately reducing rural poverty. More importantly, nutritional education should be introduced to academic curriculum of primary schools so that children may be well informed of the significance of a balanced nutrition. There should also be a heightened awareness mechanisms put in place. For example, workshops on the comparative benefits of various dairy products should be encouraged in rural schools. This may positively influence and increase the dairy products consumption pattern of school children thereby boosting their brain development and academic performance. On the aspect of policy implications, government should encourage health education programs such as school milk program, which in turn, are likely to help increase the development of the dairy industry.

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