EFFECT OF NUTRITION EDUCATION ON KNOWLEDGE OF NUTRITIONAL VALUE OF FOODS AMONG MOTHERS OF PRESCHOOLERS IN OWERRI MUNICIPAL COUNCIL, IMO STATE

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Abstract

The study investigated the effect of nutrition education on knowledge of the nutritional value of foods among mothers of preschoolers in Owerri Municipal Council, Imo State. The study adopted a pretest-posttest non-equivalent control group quasi-experimental design. The population of the study comprised all the 3,512 Women of Childbearing Age (WCBA) in Owerri Municipal Council, Imo state. Thirty-one mothers from the two health facilities selected for the study, who gave their consent in writing, formed the sample for the study. This sample was made up of 15 WCBA from World Bank Housing Area National Primary Health Care Development Agency (NPHCDA) in New Owerri ward 2- Area 'M' for the experimental group and 16 WCBA from Douglas Road National Primary Health Care Development Agency (NPHCDA) in Ikenegbu ward 2, for the control group. The instrument for data collection was a researchers 20-item achievement test titled Test of Knowledge of Nutritional Value of Foods (TKNVF). The instrument was validated by experts in nutrition and specialists in childhood education. For ethical consideration, the researchers obtained formal approval from the Health Department, Owerri Municipal Council and the officers-in-charge of the health facilities used for the study. Consent of the mothers under study, were also obtained before the commencement of the experiment. The experiment lasted for six weeks and within that period, while Nutrition Education was given to the mothers in the experimental groups, mothers in the control groups were only exposed to the normal ante natal care exercises. The health personnel in the health facilities used for the study served as the research assistants. Data collected were analyzed using Mean and Standard Deviation to answer research question while Analysis of Covariance (ANCOVA) was employed to test the null hypothesis at 0.05 level of significance. The findings of this study revealed that nutrition education significantly improved mothers' knowledge of nutritional value of foods. Based on the findings of the study, the researchers concluded that providing nutrition education for mothers of childbearing age will improve their knowledge of nutritional value of foods especially in their localities. The implication is that the wrong choices and over-reliance of mothers on processed and packaged foods has a lot to do with mothers' limited knowledge of nutritional value of foods around them. The researchers therefore recommend that educational policy reforms should re-emphasize nutrition education especially for parents within childbearing age.

Keywords: Nutrition education; Nutritional value; Mothers; preschoolers.

Introduction

The growing rate of malnutrition and other health related issues in the contemporary society is becoming a global social problem. Research evidence indicates that malnutrition and poor feeding patterns remain one of the leading causes of childhood diseases and illnesses

across the globe contributing significantly to developmental disorders and child deaths, especially during early childhood stage (World Health Organization [WHO], 2024). Early childhood stage of human development coincides with the preschool age in most countries of the world. Education and care provided for children within early childhood stage is described as early childhood education (ECE) and the children being provided for are referred to as preschoolers. According to the Federal Republic of Nigeria ([FRN, 2014]), in her National Policy on Education (NPE), preschoolers are children aged 0-5 years and are under the legal age for informal education. Preschoolers in this study is defined as children aged 0-5 years who are not yet eligible for primary level of education.

Preschoolers have some basic developmental characteristics and needs. Characteristically, preschoolers have rapid physical growth; are physically energetic, active and playful; socially gregarious and explorative; intellectually inquisitive and emotionally unstable (Godsway, Charles, Nana Ama, 2022). In the light of the above characteristics, preschool children need interactive, safe, healthy, responsive and nurturing environment for their overall health and wellbeing. Such experiences will also help preschool children to have a smooth home – school transition at the appropriate time so as to enjoy quality learning experience at school.

With such environment and quality interaction with people, objects and events, preschoolers will develop the necessary basic life and learning skills to prepare them for future education and quality life in the society. However, such environments can only be effective when appropriate nutrition is provided for young children by parents to cater for their rapid physical growth and brain development. Unfortunately, the quality and quantity of foods provided for preschool children in the contemporary societies is a serious source of concern for childhood educators and other child advocates. The worry is heightened by the growing rate of malnutrition among children. According to the World Health Organization, [WHO, 2024] malnutrition is a contributing factor to the deaths of 60.7% of children diagnosed with diarrhea, 57.3% of deaths associated with malaria; 52.3% deaths associated with pneumonia and 44.8% deaths from measles. This statistic is further validated by the pattern of food preferences mothers make especially for preschool children, basing their food preferences on convenience and available resources. Mothers in Owerri are often observed striving to feed their preschool children with processed and packaged foods most of which are sugary with a lot of additives and preservatives that are not healthy for growing children. This practice according to Chukwuemeka, Agozie, and Kunle (2019) has increased the rate of malnutrition in the area contributing to about 60.6% of underweight and 26.9% overweight and even death among children in Owerri, Imo state. This development is unhealthy as preschool children need to develop basic learning and life skills early in life. The basic life skills developed early in life helps to prepare the preschoolers for effective living within the society later in life. It will also help the child to have a smooth home-school transition so as to enjoy quality learning experience at school.

Generally, preschool education seeks to promote initiatives and practices that enhance the inclusion and participation of children in the educational processes and remove barriers that retard their development. In the preschool, children join their peer in social interactions like: swinging, talking together, discussing, playing, dramatizing, gaming and others. They learn social mores and acceptable behaviour patterns. They develop sensitivity, awareness, empathy, moral values and social integrity. Preschool education provides young children with the space

to experience movement and develop their self -confidence and sense of competence and control.

Achieving these laudable objectives of preschool education, demands developmentally appropriate nutrition for the growing children. This is because for Alexandra, Ismael, Eduardo, Erika and Vicente (2022) improper nutrition and unbalanced diet hinders preschooler's growth and may cause some malfunctioning of some body organs. Alexandra, Ismael, Eduardo, Erika and Vicente further states that malnutrition or improper nutrition in the early childhood stage leads to disorders such as obesity, cardiovascular disorders, diabetes, hypertension and cancer among others. Providing age appropriate nutrition not only depends on available resources in terms of time and money as most communities have variety of local foods that are often healthier and cheaper. Yet mothers of preschoolers are often observed clamouring for processed and packaged foods for their preschool children. Mothers of preschoolers in this study refer to young women of childbearing age who have young children of preschool age (0-5 years).

From the foregoing, it is evident that young mothers lack the knowledge of the nutritional value of foods in their locality. To buttress this fact, Jose and Andrew (2022) observed that improper feeding patterns and nutritional practices have more to do with mothers' limited knowledge of food value than mere scarcity or high cost of food. This poor knowledge of nutritional value of foods lead mothers to faulty food selection, preparation and consumption which usually contribute to poor eating habits and bad health conditions (Yangyang, Daxin & Yulian, 2021). The problem with such practice is that most times, such foods are not suitable and appropriate and above all, such practices deprive preschoolers the opportunity to acquire good nutrition and health habits early in life. In accordance with Jose and Andrew, considering the multiple local foods in Owerri, poor feeding pattern and malnutrition in the modern societies especially in Owerri is more of the product of poor knowledge of nutritional value of foods among the study group; hence, the need for nutrition education for mothers especially of childbearing age.

Nutrition education as the name implies relates to the act, principles and practices of catering for the body to ensure proper growth and development. According to Manikyamba, Vidya, Satyavani Krishma Prasad and Tulasi Deepthi, (2015), Nutrition Education relates to nutrition and daily physical activity, growth and development, food safety and protection, environmental cleanness, personal and community health, healthy eating, balanced diet, healthy diet, malnutrition, nutrition facts, micronutrient, food labeling, physical education, human nutrition, healthy weight, level of alcohol intake; food storage and others. To Martinez and Doe (2018), Nutrition Education will give mothers a better knowledge of nutritional value of foods for their preschool children. Nutrition education in this study is defined as a teaching and learning experience designed with the intention of improving the mothers' knowledge on nutritional value of foods especially foods available in their localities.

Knowledge of nutritional value of foods is an important tool in assessing the nutritional status of an individual, family, group or community, especially of preschoolers. It helps mothers to maintain a normal body weight by feeding their children with more of vegetables, fruit, legumes and less sugared drinks such as pops, juice and fast foods to avoid obesity. Knowledge of nutritional value of foods has also been identified as one of the several factors that influence mothers' food preference and affect children's eating habit (Nurdan, Alper,

Haldun and Ayse, 2013). Long period of poor dietary pattern among children may lead to weight loss, under weight, stunted growth among others. Having knowledge of food value is to acquire the knowledge of a balanced nutrition, which includes food combination. It has to do with the knowledge of the amount of food nutrients inherent in any food provided for a person based on the individual's developmental characteristics and body requirements.

Food nutrients are classified into six groups known as food classes: carbohydrates, protein, mineral, fats and oil, vitamins and water. According to the Federal Ministry of Health (2012), these classes of food can be regrouped into three major classes: body building (protein); energy giving foods (carbohydrates, fats); and protective foods (vitamins and minerals). Preschoolers require all the food classes in the adequate proportion due to their developmental characteristics and needs. Carbohydrate for instance is vital for the preschoolers to provide energy needed to sustain their strength as they are almost active throughout their wakeful hours. Foods rich in carbohydrate include Cassava, Cocoyam, Sweet potatoes, Yam, Amala, Garri, Rice; Peas, Wheat, Corn, Pasta, Millet, Oatmeal; among others (Ivica, Ranjana & Paul, 2023).

Protein also is vital for maintaining preschoolers' tissues and organs, bones and muscles. According to Godsway, Charles, and Nana, (2022), protein in the diet provides amino acids which include the structural proteins for the building and repairing of tissues, and enzymes for carrying out the metabolic processes. Protein can be obtained from plant and animal sorces. Such foods include Soya Bean, Cow pea, Milk, Groundnut, Cashew nut, Peanut, dairy, oil bean, Bread fruit, Bambara; Egg, fish, meat, and nuts.

Another vital nutrient for preschool children is mineral which is composed of inorganic materials necessary for children's bone formation and structures, and for maintenance of health. As a component of haemoglobin and myoglobin, it is involved in the transfer of oxygen between blood and tissues. According to Peculiar, Chukwuebuka, Muhammed, Mihnea – Alexandru, Muhammed, Naveed, and Olatunde (2020) foods rich in mineral include root crops, green vegetables, milk, broccoli and fruits. Minerals can also be obtained from plantain, Lean meat, Liver, milk, Garlic, Onion, Green vegetables, Mackerel, Fish, dried nuts, beans, peas, egg yolk, red meat, whole wheat bread among others.

Vitamins are also required in the body for a normal growth, maintenance of health; brain functioning, vision and resistance to infection. According to Peculiar, Chukwuebuka, Muhammed, Mihnea –Alexandra, Muhammed, Naveed, and Olatunde (2020), the source of vitamins include: vegetables (Water pumpkin, Water leaf, Cabbage; and others) fruits (Oranges, pumpkin, Tangerine, Paw-Paw, Guava, Mango, Banana, Grape fruit, Water melon, Carrot and others). Fats and oil in the body are also necessary for preschool children. They act as sources of stored energy, supplying physical protection and insulation for tissues and form important portions of cell membrane structure. Fats also aid the absorption of the fat-soluble vitamins (vitamin A, D, E and K) from the intestine; however, its excess can lead to overweight, heart disease and other illnesses. Important sources of fats and oil according to Oluwafunke, Oluseye, Silifat, Mojisola, and Abiodun, (2022) are fatty fish; Avocado, Melon seed, coconut oil and extra virgin Olive oil, dairy and Butter from organic grass-field animals, Olives, Nuts: (Almonds, Walnuts, Macadamia Nuts), seeds: (Pumpkin and others) Fruits and vegetables also contain large quantities of water in proportion to their weight.

From the discussion so far, the rate of malnutrition and childhood diseases in the study area is surprising. This is because most of the foods discussed above are readily available in

Owerri but because mothers lack the knowledge of their nutritional values, they end up patronizing and focusing their attention on processed and packaged foods even when they can scarcely afford them in addition to their being a source of threat to the children's health and well being, thus the focus of this study on providing nutrition education for mothers of childbearing age.

Statement of the problem

The growing rate of malnutrition and other health related issues in the contemporary society is becoming a global social problem. Research evidence indicates that malnutrition and or poor feeding patterns remain one of the leading causes of diseases and illnesses across the globe contributing significantly to developmental disorders and child deaths especially among preschool children. Overweight and underweight are commonly observed among preschoolers especially in Oweeri, Imo state. Preschool children need quality and developmentally appropriate feeding as they are at the stage of rapid physical and brain development. Unfortunately, mothers who have the responsibility of providing developmentally appropriate nutrition for these children do not have knowledge of the nutritional value of foods especially those within their locality. It is worrisome that with the enormous local foods with high nutritional values in Owerri Municipal Council of Imo state, many mothers still prefer packaged and processed foods (junk foods) for their children. They are also commonly observed giving their preschooler one type of food and worse still, they deprive the children of the opportunity to participate in the nutritional activities at home which are necessary for their basic social skills development. Evidence from research and the researchers' casual interactions with mothers indicates that poor food preferences among mothers of childbearing age in the contemporary societies especially in Owerre not necessarily caused by poverty but more by lack of proper knowledge of the nutritional value of foods at their disposal. The researchers therefore focused this study on improving mothers' knowledge of nutritional value of foods within their localities through NE.

Objectives of the Study

This study has a single purpose of determining the effect of nutrition education on mothers' knowledge of nutritional value of foods in Owerri Municipal Council, Imo state.

Research Question

What is the difference in the mothers' mean scores in a test of knowledge of nutritional value of foods when exposed to nutrition education and when not exposed?

Hypothesis

There is no significant difference between mothers who were exposed to NE and those who were not exposed to NE on knowledge of nutritional value of foods as measured by their mean scores in a Test of Knowledge of Nutritional Value of Foods (TKNVF).

Methodology

The study adopted a pretest-posttest non-randomized Control Group Quasi-experimental design. The population of the study comprised all the 3,512 Women of Childbearing Age (WCBA) in Owerri Municipal Council, Imo state (Imo state Ministry of health and Women's

Development, 2019). The WCBA are those between the ages of 14-50 years old. There were thirty one mothers (31) from the two health facilities selected for the study, who gave their consent in writing and they formed the sample for the study. This sample was made up of 15 WCBA in New Owerri ward 2- Area 'M' World Bank Housing Area National Primary Health Care Development Agency (NPHCDA) for the experimental group and (16) WCBA in Ikenegbu ward 2 –Owerri Municipal Council, Douglas Road National Primary Health Care development Agency (NPHCDA) for the control group. The instrument for data collection was a researchers'–designed 20 item achievement test titled Test of Knowledge of Nutritional Value of Foods (TKNVF). The instrument was validated by experts in nutrition and childhood education development.

Experimental Procedure

After obtaining the consent of the participants, the actual experiment was done within a period of six weeks. The first week used for the pre-test for both the experimental and control groups. This was done with the help of two research assistants (health workers in the selected health posts). From the second to the fifth week, the experimental group was given nutrition education focusing on the developmental characteristics and nutritional value of foods within their locality, using researchers' designed nutrition education manual which was validated by experts. Finally, in the sixth week, TKNVF was re- administered to the mothers as a posttest to both experimental and control group. Their responses were collated and analyzed.

Ethical Consideration

The researchers obtained formal approval from the Health Department, Owerri Municipal Council and the officers –In-Charge of the health facilities used for the study. Consent forms were also distributed to the mothers who attended antenatal and postnatal care sessions within two months before the commencement of the study and only those who completed and returned the forms were included in the sample of the study. However, mothers who did not give consent to participate in the study were at liberty to join in the nutrition education though not part of the sample.

Method of Data Analysis

The data collected were analyzed using Mean and Standard Deviation to answer the research question while Analysis of Covariance (ANCOVA) was employed to test the null hypothesis at 0.05 level of significance. The TKNVF was a (20) item question with each question carrying five marks given a maximum score of 100 for the test. For the purpose of interpretation and discussion of findings, the following decision rule with regards to mothers' score on TKNVF was adopted: 100-70% = High knowledge, 69-50%= Moderate knowledge and 49% - 0% = Low knowledge of nutritional value of foods.

Results

Research Question: What is the difference in the mothers' mean scores in a test of knowledge of nutritional value of foods when exposed to nutrition education and when not exposed?

Table 1: Mean analysis of the mother's scores on a test of knowledge of nutritional value of foods

	Pretest	Posttest	Mean gain

Treatment		n	Mean	Std. Deviation	Mean	Std. Deviation	
Experimental	NE	15	10.60	5.15	17.20	1.26	6.60
Control	-	16	10.56	2.42	13.43	2.52	2.87

Data in Table 1 shows that the mothers exposed to nutrition education had mean knowledge of nutritional value of foods of (M = 10.60, SD = 5.15) at the pre-test and (M = 17.20, SD = 1.26) at the post-test respectively as measured by TKNVF. Similarly, their counterparts who were not exposed to NE had mean knowledge of nutritional value of foods of (M = 10.56, SD = 2.42) and at the pretest and (M = 13.43, SD = 2.52) at the post-test respectively as measured by TKNVF also. The mean gain scores of 6.60 and 2.87 for the experimental and control groups participants showed that the experimental group participants had higher mean knowledge of nutritional value of foods than those who were not exposed to nutrition education.

Ho: There is no significant effect of nutrition education on mothers' knowledge of nutritional value of foods.

Table 2: Analysis of covariance for the effect of nutrition education on mothers' knowledge of nutritional value of foods when exposed to nutrition education and when not exposed

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	134.049[a]	6	22.342	5.711	.001	.588
Intercept	686.870	1	686.870	175.584	.000	.880
Pretest KNVF	1.043	1	1.043	.267	.610	.011
Treatment	80.719	1	80.719	20.634	.000	.462
Family Income	20.874	2	10.437	2.668	.090	.082
Treatment * Family Income	5.516	2	2.758	.705	.504	.055
Error	93.886	24	3.912			
Total	7445.000	31				
Corrected Total	227.935	30				

a. R Squared = .588 (Adjusted R Squared = .485)

Data in Table 2 revealed that there is a significant effect of NE on mothers' knowledge of nutritional value of foods, F (1, 24) = 20.634, p = .000, with an effect size of .462. This means that the null hypothesis is rejected since the associated probability value of .000 is less than the 0.05 level of significance. Besides, the effect size of .462 implies that 46.2 percent change in

mothers' knowledge of nutritional value of foods as a result of their exposure to nutrition education.

Discussion of Findings; Conclusion, Implications and Recommendations

The findings of this study revealed that nutrition education significantly improved mothers' knowledge of nutritional value of foods. This finding is in line with Martinez and Doe (2018), who observed that Nutrition Education gives mothers a better knowledge of nutritional value of foods for their preschool children. The finding also agrees with Patali (2018) who observed that lack of appropriate knowledge of food value leads mothers to spending more money on canned and processed foods that may not be healthy for growing children. Based on the discussion of this finding, the researchers concluded that mothers' attitude or preference for artificial and processed foods to local foods that are often more nutritious, and even cheaper can be attributed to their limited knowledge of the nutritional value of foods in their localities. By implication, nutrition education especially for women of childbearing age will help to improve knowledge of the nutritional value of foods available in local communities. In furtherance, appropriate knowledge is the key to appropriate food preferences especially for the preschoolers. The researchers therefore recommend that nutrition education should be provided for mothers especially of childbearing age, to help them understand better the nutritional value of foods in their localities to minimize over reliance on processed and packaged foods which are often nothing but junk.

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