



## Mothers' Challenges in Promoting Healthy Eating Habits Among Pre-School Children in Osun State, Nigeria

Adekunle A. Folorunso  
Obafemi Awolowo University, Ife-Ife, Nigeria

### Abstract

*This study focuses on assessing the challenges mothers face in promoting healthy eating habits among pre-school children in Osun State, Nigeria. A total of 1100 structured questionnaires were administered to the respondents across all 30 Local Government areas. Information about their socio-economic characteristics, knowledge about the importance of promoting healthy eating habits, factors that influence their choice of food, and their barriers to making healthy food choices for their children was collected. The results were analyzed using descriptive and inferential statistics. The results revealed that 65.4% of the respondents had high knowledge, 20.6% had medium knowledge, and 14% had low knowledge about the importance of promoting healthy eating habits among pre-school children. Also, some factors that determines the food choices of the respondents includes affordability (80.9%), nutrient content of the food (73.6%), and child's preference (52.8%). Furthermore, the respondent's barriers to making healthy food choices for their children includes their nature of job (59%), level of income (67%), lack of time (60.9%), and ingredient unavailability (73.6%). In conclusion, the study shows that majority of the respondents are knowledgeable about the importance of promoting healthy eating habits, but affordability and child preference are major factors that influence their choice of food for their children.*

**KEYWORDS:** MOTHERS' CHALLENGES, HEALTHY EATING HABITS, PRE-SCHOOL CHILDREN, MOTHERS' KNOWLEDGE, FOOD CHOICES

### Introduction

Along with other health behaviours, eating habits have generally improved in developed countries during the recent decades (Dave et al., 2016). Since food behaviour and prudent dietary habits (such as vegetable and fruit intake) are usually learned during childhood, and these habits may also track into adulthood (Mikkilä et al., 2005), childhood is a crucial time to influence these behaviours, and interventions should target families. Child feeding practices and food choice are concerns of every member of the family, especially the mother, but they are influenced by many factors. It is the parents that determine what the health, safety, and nutrition of young children is going to look like everywhere (Chetan, 2018).

According to UNICEF (2014), children's development is rapid in the first years of life, and the period of development from the prenatal stage through the transition to primary school sets a critical foundation for the entire life course. During these early years, children are learning what, when, and how much to eat based on the transmission of cultural and familial beliefs, attitudes, and practices surrounding food and eating. The dietary habits that a child acquires in childhood continue into adulthood (Mukherjee & Chaturvedi, 2017). Thus, it is important to promote healthy energy balance behaviours, such as dietary intake, during early childhood. Taylor et al. (2005) defined healthy eating as "eating practices and behaviours that are consistent with improving, maintaining and/or enhancing health."

The years between a child's 2nd and 5th birthdays are referred to as the preschool years, and they represent a period of rapid social, intellectual and emotional growth. Preschool children need three regular meals and two snacks a day. They enjoy eating with their parents. It is at preschool age that the basic patterns are acquired, especially eating patterns (Lourenço et al., 2014). It is therefore important to create opportunities for children of this age group to practice healthy behaviours related to diet. It is important for parents to serve as a good model for their children by eating a balanced diet with a variety of vegetables and fruits (Family Health Service, 2016). This helps the children develop healthy eating habits in early age.

Adequate and appropriate dietary intake is essential in the preschool ages for inculcating healthy eating habits so as to provide nutrients not just for immediate growth, development and scholastic performance but also for long-term health. Children are most susceptible to the adverse consequences of bad eating habits. In many cases, children have an unbalanced diet, eat high-energy or high-fat foods, eat irregular snacks, or otherwise have unhealthy dietary habits. The possibility of correcting eating habits is possible through changing eating habits from low-nutrient, high-energy diets to nutritious food and food with sufficient energy. A good and proper diet does not mean that the child cannot eat what it wants or that it must eat what it doesn't want. It actually means variety and moderation in diet. Regular meals and nutritious snacks include foods rich in carbohydrates, fruits and vegetables, dairy products, meat, fish, poultry, eggs, legumes and plants. It is necessary to offer enough fluids, especially if the weather is warm or the child is physically active. Water provides good hydration for the body with no calorie intake. With the influence of the parents, children have better guidance on what to eat thereby preventing them from making unhealthy food choices (Nikolic, 2013). Eating is a discrete behavioral event, and the quantity and quality of the child's diet depend upon the meal frequency, the amount consumed at each meal, and which foods the child prefers and selects for consumption. Food intake and dietary quality can be altered by one or combination of these three behavioural parameters dramatically.

According to Pramod-Singh et al. (2009), to help children develop healthy eating patterns from an early age, it is important that the foods and eating patterns to which they are exposed—both at home and outside the home—promote positive attitudes towards good nutrition. Therefore, parental influences, particularly maternal influences appear to play in the role of children's food choices. Accordingly, one of the important methods for intervening in children's diet would involve targeting mothers so as to reduce cardiovascular diseases, cancers, obesity, diabetes and other nutrition-related diseases in adulthood and would coincide with increasing emphasis on health promotion. However, intervention aimed at mothers implicitly assume that changing mothers' beliefs and behavior would result in a subsequent change in their children's diets, therefore improving their food choices.

Although the home environment is the logical place in which to foster healthy eating habits, studies have shown that food choices are complex and influenced by several factors including knowledge, socio-economic status, cost, taste, child preference, urbanization, and culture (Black et al., 2013; Cowburn & Stockley, 2005). These factors ultimately impact the food that is available at home. Despite their critical roles in the home food environment, mothers are faced with a lot of barriers to feeding their children in the home, and these perceived barriers may have an influence on the eating habits of the children (Roos et al., 2012). Developmentally, the preschool period is particularly important because excess weight from age 2 to 5 years is a powerful predictor of adult adiposity (McCarthy et al., 2007). Unhealthy food choices made by mothers can have a negative impact on child health and may lead to unhealthy eating behaviours that persist into adulthood (Smith et al., 2017). Mother's choice of food is sometimes influenced by "the bigger is better" mentality regarding the portion sizes and energy density of foods offered to their children, both of which can increase children's total energy intake and impact negatively on the eating behavior of children and weight status (Fox et al., 2006).

Also, when children's access to and intake of highly palatable foods are excessively restricted, it can promote increased preference and over consumption of those restricted foods when they are readily available (Birch et al., 2007; Faith et al., 2002). Similarly, research has shown that when children are encouraged or pressured to consume more fruits and vegetables, they tend to have a lower intake of fruits and vegetables and have higher intake of dietary fats (Faith et al., 2002).

When the barriers and the possible ways to overcome them are well understood, and also when mothers know the importance of promoting healthy eating, it can help them improve their behaviours and motivations towards what they feed their children with, as well as help their children make healthy food choices that they can take with them into adulthood.

### **Objectives of the Study**

The main objective of this study was to assess mothers' challenges in promoting healthy eating among their preschool children. Specifically, the study sought to:

- i. assess the socio-economic characteristics of mothers with preschool children,
- ii. assess the knowledge of mothers about the importance of healthy eating among their children,
- iii. examine factors that determine mothers' food choices for their children,
- iv. identify mothers' barriers to making healthy food choices for their children.

Interventions to improve or promote children's healthy eating habits or dietary behaviour may be more effective by focusing on the role of mothers in the development of children's dietary behaviour. When mothers are targeted and encouraged to change their motivations and behavior towards their children's diet, it encourages the children to make healthy food choices from childhood, and continue with the knowledge and practice to adulthood and then they will also help their children to make good food choices as well. This may play a role in building a future generation with better health, with little or no incidence of nutritionally related diseases such as cardiovascular diseases, cancer, obesity, diabetes and so forth.

## **Methodology**

### **Study area**

Osun state is a state in south-western Nigeria. The state was created from the old Oyo state on August 27, 1991. The state derives its name from the river Osun. The state covers a total land area of 9251km<sup>2</sup> and its capital is Osogbo. The state is bounded in the north by Kwara state, in the east by partly Ekiti and partly Ondo states, in the south by Ogun state and in the west by Oyo state. According to the 2006 population census, the population of the state is 3,416,959. The state is divided into three federal senatorial districts, which are Osun East, Osun West and Osun Central. The state consists of thirty local government areas. The three major religions practiced in the state are Islam, Christianity and traditional religion. Some of the local foods consumed in the state are Solid Pap (Eko) with either Vegetable Soup or Okra Soup, Pounded Breadfruit (Iyan Gbere) with either Vegetable Soup or Okra Soup, Ekuru with Solid Pap or Okra Soup, Dele, Ojojo and Abari.

### **Research Design**

The design used was a cross-sectional descriptive study design.

### **Sources of Data**

Data used in this study were collected from research respondents through questionnaires and others through reviewed literature.

### **Study Population and Sample**

The study population was mothers with children who were between about three and five years old and lived in Osun State, Nigeria. A purposive simple random sampling procedure was employed to administer the questionnaire and to select 1100 respondents from all the major towns, markets, offices and business centers in the thirty local government areas of Osun State. The Research Advisor (2006) table for sample size determination was used at a 95% confidence interval and a 5% margin error. Thirty-seven (37) respondents were randomly selected from each local government area. Data were collected from 1110 respondents but 1100 were included for analysis after the removal of outliers.

### **Research instruments**

A self-administered, structured questionnaire was used to collect the data. The questionnaire contained both closed-ended and open-ended questions. The open-ended questions allowed for the free expression of opinions and positions. The questionnaire consisted of four sections. Section A collected information about the socio-economic characteristics of the respondents. Section B included questions that assessed respondents' knowledge on the importance of promoting healthy eating among their children. This question was structured and answered by using the five-point Likert scale ranging from "strongly disagree" (SD), "disagree" (D), "Not sure" (NS), "agree" (A), "strongly agree" (SA). Points (1-5) were attached to each column ranging from SD to SA respectively. Section C included questions that collected information on the factors that influenced the respondent's food choices for their children and section D gathered information on the barriers that the respondents faced in promoting healthy eating among their children.

**Data Collection**

A qualitative collective case study design was used to explore mothers' views of their challenges in providing healthy foods for their children at home. The interview began with a general knowledge question regarding how mothers would define healthy food and followed with questions on barriers faced in providing healthy food at home. Mothers completed a demographic questionnaire that included parents' age, working status, and educational levels, as well as demographic questions for their children, including their age, gender and race or ethnicity. The questionnaire was prepared in English and administered in English because 90% of the respondents are literates, but other measures were taken such as using plain and simple sentences, avoiding the use of jargon and having the data collectors serve as local interpreters. The questionnaire items were explained to the respondents and collected on the spot. The research team explained that anonymity and confidentiality would be ensured.

Frequency and percentages were used to analyze the demographic characteristics while ANOVA and the Chi-Square test were used to test the null hypothesis using a computerized data analysis package known as Statistical Package for Social Science (SPSS version 22.0).

**Informed consent**

Informed Consent Documents (ICD) containing the Participants Information Sheet and Informed Consent Form were prepared and handed over to prospective research participants. Participants were allowed to ask questions and clarifications were made. After getting consent from the participants, the questionnaire was handed to them and a copy of the signed informed consent sheet was also given to them for keeping. Privacy and confidentiality of participants' information were assured and safety measures were provided. The study was conducted only after due approval from the Ethics committee.

**Validation of Research Instrument**

The data collection instrument was subjected to the review and critical examination of capable hands in the Food, Nutrition and Health Policy field to ensure the relevance of contents and effectiveness to the problem under study. Corrections were made where necessary and irrelevant items were discarded.

The reliability of the instrument was established through Cronbach Alpha ( $\alpha$ ) coefficient index. Twenty copies of the questionnaire were administered to twenty mothers in Ife Central Local Government Area, Osun State, who are not part of the study. This was conducted through direct delivery to their households, after that it was correlated and it yielded a coefficient of 0.82 which was regarded as reliable.

## Results and discussion

Table 1 Distribution of Respondents' Socio-Demographic Characteristics

Parameters	Variables	Frequency	% (n = 1100)
Relationship with child	Mother	1050	96.4
	Step mother	20	1.8
	Grand mother	30	2.7
Number of children	1	280	25.5
	2	360	32.7
	3	280	25.5
	4	160	14.5
	5	20	1.8
Age	21-30	520	47
	31-40	500	45
	41-50	60	5.6
	51-60	20	1.8
Marital status	Single	30	2.7
	Married	1060	96.4
	Divorced	0	0
	Widowed	10	0.9
Number of preschool children	1	850	77.3
	2	240	21.8
	3	10	.9
Religion	Christianity	840	76.4
	Islam	260	23.6
Ethnicity	Yoruba	930	84.5
	Igbo	170	15.5

It was observed from Table 1 that people within the age range of 21-30 were 47%, 31-40 years were 45%, 41-50 years were 5.6% and 51-60 years were 21.8%. This result indicates that mothers within the age range of 20-30 years were higher than in all other age groups and is in line with Black et al. (2013), who confirm early marriage trends in low-income countries. This result also shows that respondents that are married are 96.4%, 2.7% are single and 0.9% are widowed, which shows that majority of the respondents are married. Also, analysis of the respondent's relationship with the children shows that 94.5% are the mothers, 2.7% accounted for both the step mothers and the grandmothers, indicating that the majority of the respondents are the mothers of the pre-school children.

Table 1 also shows the number of children per respondent. 25.5% had one child, 32.7% had two children, 25.5% had three children, 14.5% had four children and 1.8% of the respondents had five children. Furthermore, 77.3% of the respondents had one pre-school child, 21.8% of them had two pre-school children and 0.9% had three pre-school children. This implies that pre-school children are found in almost every household. This could be an avenue for mothers to

develop strategies to manage the eating habits of their children and is in line with a similar study conducted by Martha & Weiwen (2016), who concluded that mothers' closeness to their children could be used to manage and develop strategies to control junk food and picky eaters among pre-school children. Therefore, parental influences, particularly maternal influences appear to play in a role in children's food choices.

Table 2 Distribution of Respondents' Socio-Economic Characteristics

Parameters	Variables	Frequency	% (n = 1100)
Level of education	Primary	40	3.6
	Secondary	250	22.7
	Tertiary	800	72.7
	None	10	0.9
Husband's level of education	Primary	30	2.7
	Secondary	140	12.7
	Tertiary	910	82.7
	None	20	1.8
Employment status	Not employed	20	1.8
	Self employed	750	68.2
	Civil servant	280	25.5
	Others	50	4.5
Husband's employment status	Not employed	40	3.6
	Self employed	660	60.0
	Civil servant	340	30.9
	Others	30	2.7
Level of income	Below 20000	250	22.7
	20001-40000	390	35.5
	40001-60000	160	14.5
	60001-80000	120	10.9
	Above 80000	180	16.4
Husband's level of income	Below 20000	80	7.3
	20001-40000	80	7.3
	40001-60000	190	17.3
	60001-80000	130	11.8
	Above 80000	600	54.5
Hours of work	1-5	10	0.9
	6-10	880	80
	11-15	210	19

Table 2 shows the hours of work per day of the respondents, which are 1-5hours (0.9%), 6-10hours (80%) and 11-15 hours (19%). This finding indicates that the majority of the respondents are working between 6-10hours per day. This may have a mild implication on the eating habits of preschool children. 3.6% of the respondents had primary education, 22.7% had secondary school, 72.7% had tertiary education and 0.9% had no education.

The study revealed that the mothers were well educated and confirmed the role an enlightened mother can play in the nutrition education of their children. This is in agreement with the study of Rylatt & Cartwright (2016), where nutrition education was suggested as a method of control. Furthermore, 22.7% earn below ₦20,000, 35.5% earn between ₦20,001 and ₦40,000, 14.5% earn between ₦41,001 and ₦60,000, 10.9% earn between ₦61,001 and ₦80,000, and 16.4% earn above ₦80,000. Table 2 shows that 2.7% of the respondent's husband had primary education, 12.7% had secondary education, 82.7% had tertiary education and 1.8% had no education. Table 2 also shows that 7.3% of the respondent's husband earns below ₦20,000, 7.3% earn between ₦20,001 and ₦40,000, 17.3% earn between ₦40,001 and ₦60,000, 11.8% earn between ₦60,001 and 80,000 and 54.5% earn above ₦80,000 per month, which is in agreement with the similar study of Black et al. (2013), who discussed the average income per head in developing countries.

Table 3 Knowledge of Mothers on the Importance of Promoting Healthy Eating Habits Among Pre-School Children

Variables	SD	D	NS	A	SA
Eating habits in adult starts from childhood	20 1.8%	60 5.5%	70 6.4%	550 50.0%	400 36.4%
Teaching healthy habits is important	0 0.0%	20 1.8%	30 2.7%	400 36.4%	650 59.1%
Unhealthy eating results in obesity	20 1.8%	90 8.2%	170 15.5%	380 34.5%	440 40.0%
Childhood eating habits determine adult health	10 0.9%	30 2.7%	100 9.1%	69 62.7%	270 24.5%
Healthy eating benefits brain health	30 2.7%	30 2.7%	80 7.2%	510 46.4%	450 40.9%
Improper nutrient intake has health implications	20 1.8%	100 9.1%	180 16.3%	290 26.4%	510 46.4%
Children like restricted food more	100 9.1%	310 28.2%	160 14.5%	370 33.6%	160 14.5%
Eating as a family develops good eating habits	20 1.8%	20 1.8%	160 14.5%	590 53.6%	310 28.2%
Eating fruits and vegetables prevents diseases	10 0.9%	90 8.2%	120 10.9%	410 37.3%	470 42.7%
Children should not eat too many sweets	70 6.3%	90 8.2%	140 12.7%	480 43.7%	320 29.1%
Fatty foods cause heart diseases	0 0.0%	120 10.9%	150 13.6%	600 54.5%	230 20.9%
Children should not eat too many favourite foods	180 16.4%	380 34.5%	180 16.4%	230 20.9%	130 11.8%
Children eat junk food if not guided	70 6.4%	110 10.0%	60 5.5%	570 51.8%	290 26.3%
Favourite foods should not always be given for good behaviour	510 46.4%	340 30.9%	120 10.9%	50 4.5%	80 7.3%

Notes: SD-Strongly disagree, D-Disagree, NS-Not sure, A-Agree, SA-Strongly agree



From Table 3, virtually all the respondents asserted that children develop eating habits right from childhood to adulthood (86.4%), while the rest of the respondents do not think that children develop eating habits from childhood. This indicates that most respondents believe that children develop eating habits right from childhood on. Also, the majority of the respondents opined that teaching healthy eating habits to children is very important (95.5%), while other respondents are of the opinion that teaching healthy eating habits to children is not important (4.5%). These findings indicate that most of the respondents think or know that teaching healthy eating habits to children is very essential. Furthermore, most of the respondents agreed that unhealthy eating habits result in obesity (74.5%), while others think that unhealthy eating does not result in obesity. This shows that most of the respondents supported the idea that unhealthy eating results in obesity in children. This finding is similar to that of Martha & Weiwen (2016) who posited that mothers know how to manage barriers like junk, picky eaters, and so forth among the children. Also, most of the respondents asserted that children eating habits determine their health in adulthood (87.2%), while others do not think that children eating habits determine their health in adulthood. Most respondents indicated that healthy eating benefits brain health (87.3%) while others think otherwise. Most of the respondents also asserted that improper nutrient intake has health implications (72.8%), while others do not think that improper nutrient intake has health implications. 48.1% of the respondents agreed that children like restricted food more. Most respondents agreed that eating as a family helps develop healthy eating habits (81.8 %). While others think otherwise. This indicates that most respondents agreed that eating as a family is a strategy to improve the eating habits of the children.

This is in agreement with Niskanovic et al. (2023), who believed that kindergarten could be role-modeled in the community. Most respondents also agreed that fruits and vegetables prevent diseases (80%) while others do not think that fruits and vegetables prevent diseases. The majority of the respondents agreed that children should not eat sweets (72.7%). Most respondents think that fatty foods cause heart disease and that children eat junk food if not properly guided (78.1%).

The result shows that 65.4% of the respondents had high knowledge about the importance of promoting healthy eating habits, 20.6% of the respondents had medium knowledge and 14% had low knowledge. The implication is that the mothers were well informed about the need to promote healthy eating habits among their children. As opined by Ventura (2017), higher levels of parental education were positively associated with higher nutrition knowledge scores. This study confirms the findings of Ventura (2017) and Rylatt & Cartwright (2016), where nutrition education was discovered as a method of control in parental feeding behavior and motivations regarding preschool-age children.

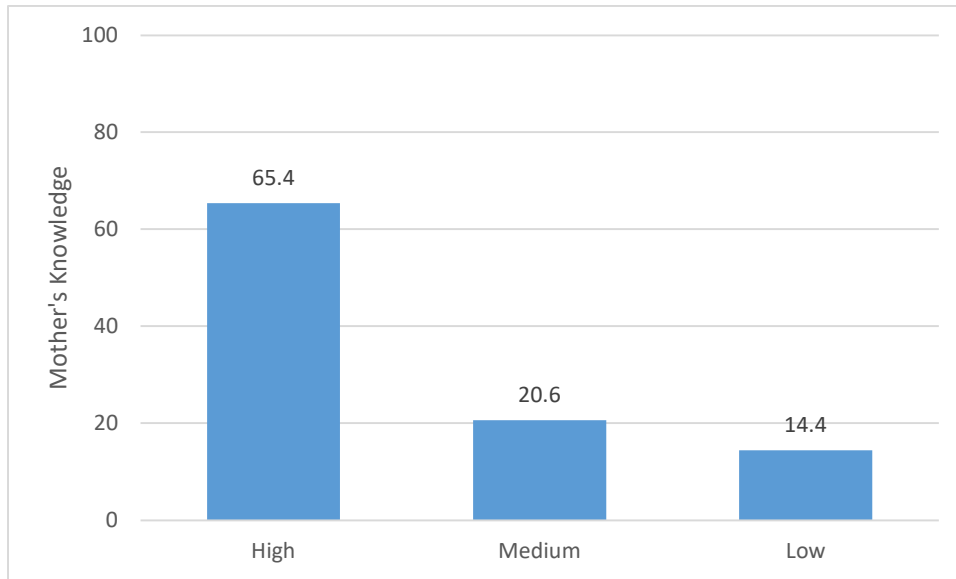


Figure 1 Mothers' knowledge on the importance of promoting healthy eating habits among children

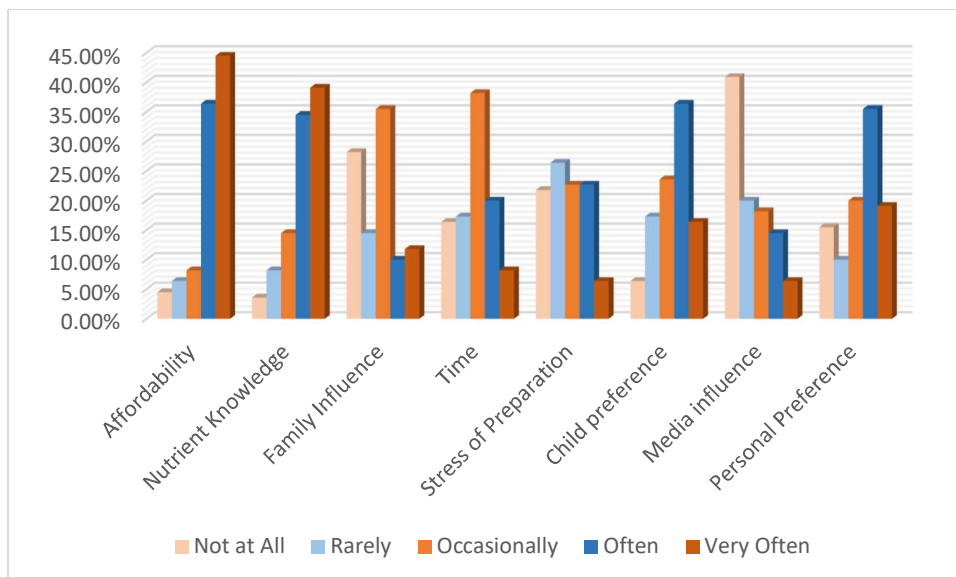


Figure 2 Factors influencing mothers' food choices for their children

From figure 2, affordability is a major factor that influences the choice of food of the majority of the respondents (very often 44.5% and 36.4% often, occasionally 8.2%) and this supports the notion of Smith et al. (2017). Also, the majority of the respondents (very often 39.1%, often 34.5% and occasionally 14.5%) opined that they make food choices because they have knowledge of the nutrients present in the foods while few population of the respondents (11.8%) are of the opinion that knowledge of the nutrient content of foods is not a factor that affects their choice of food for their children.

Figure 2 also shows that some of the respondents (very often 11%, often 10% and occasionally 35.5%) made food choices based on the influences of family and friends, while other respondents (not at all 28.2% and rarely 14.5%) did not. A higher percentage of the respondents (very often 8.2%, often 20%, and occasionally 38.2%) made food choices for their children based

on the time constraint which is in agreement with the findings of Schonfeldt and Gibson (2009) that time constraint is a factor that influences the choice of mothers, resulting in regular purchases of convenience foods. Some of the respondents (rarely 26.4%, not at all 21.8%) opined that the stress of preparation of some food is not a factor that influences their choice of food for their children while the other respondents (very often 6.4%, often 22.7% and occasionally 22.7%) agreed that stress of preparation of certain foods determined their choices of food for their children. The Figure also shows that the majority (very often 16.4%, often 36.4% and occasionally 23.6%) of the respondents make food choices based on the preference of the child while other respondents (rarely 17.3% and not at all 6.4%) asserted that the food preference of a child was not a factor that influenced their choice of food for the children, this is in agreement with Smith et al. (2017), who opined that “habits, tradition and child preferences are also factors that influences mother’s food choice”.

Most (not at all 40.9%, rarely 20%) of the respondents do not make food choices based on the influences of the media while the other respondents (occasionally 18.2%, often 14.5% and very often 6.4%) were influenced by the media in making food choices for their children. More so, a larger population of the respondents (very often 19.1%, often 35.5% and occasionally 20%) chooses food based on their own preference for the food while the rest of the respondents (not at all 15.5% and rarely 10%) asserted that their own personal food preference was not a factor in their choice of food for their children. This agrees with the findings of Hetherington et al. (2017), which state that “the likelihood that a given food will be offered to child is often linked to the likes and preferences of the parent”. This is also in line with the study of Niškanović et al. (2023), where awareness about the educational aspects of kindergartens and their role in the development of healthy eating habits among children was part of the NFPI program.

Table 4 Mothers’ Barriers in Making Healthy Food Choices for their Children

Variables	Very Often	Often	Occasionally	Rarely	Not at all
Nature of job	130 11.8%	140 12.7%	380 34.5%	130 11.8%	320 29.1%
Lack of confidence of trying new foods	130 11.8%	160 14.5%	200 18.2%	280 25.5%	330 30.0%
High cost of food	130 11.8%	200 18.2%	140 12.7%	230 20.9%	400 36.4%
Availability of convenience foods	130 11.8%	160 14.5%	360 32.7%	220 20.0%	230 20.9%
Child preference	230 20.9%	310 28.2%	400 36.4%	20 1.8%	140 12.7%
Family influence	40 3.6%	80 7.3%	360 32.7%	150 13.6%	470 42.7%
Lack of time	100 9.1%	13 11.8%	440 40.0%	160 14.5%	270 24.5%
Income level	130 11.5%	440 40.0%	170 15.5%	150 13.6%	210 19.1%
Ingredient unavailability	180 16.3%	350 31.8%	280 25.5%	100 9.1%	190 17.3%
Lack of preparation know-how	90 8.2%	120 10.9%	210 19.1%	360 32.7%	320 29.1%

From Table 4, 24.5% of the respondents reported that they were often affected by their nature of job, 34.5% of the respondents were occasionally affected by their nature of job, and 29.1% of the respondents reported that their nature of job was not a barrier to making healthy food choices for their children. Moreover, 54.6% of respondents reported that lack of confidence was not a barrier to making healthy food choices for their pre-school children because they do not feel scared of trying new foods for their pre-school children, 26.3% are often scared of trying new foods for their pre-school children and 18.2% of the respondents feel scared occasionally. Also, 57.3% of the respondents reported that the high cost of food items was not a barrier to making healthy food choices for their pre-school children because they do not find it expensive to buy foods that are healthy for their children. While 30% of the respondents agreed that they found it expensive to buy healthy foods for their children, 12.7% of the respondents reported that they occasionally find it expensive to buy healthy foods for their children.

Table 4 revealed that 32.7% of respondents agreed that the availability of convenience foods is occasionally a barrier to making healthy food choices for their pre-school children because it saves them the time of preparing meals, while 26.3% reported that the availability of convenience foods is often a barrier, 20.9% of the respondents reported that it was not a barrier for them. Some of the respondents (49.1%) reported that their child's food preference is often a barrier to making healthy food choices for their pre-school children because they give certain foods since their children prefer to eat them; 36.4% respondent occasionally gives their pre-school children foods because they preferred to eat them while 12.7% of the respondents says child food preference is not a barrier to them in making healthy food choices for their children. Few of the respondents (10.9%) also agreed that the influence of friends and families was a barrier to making healthy food choices for their children, 32.7% of the respondents are occasionally influenced by their friends/families and 52.4% of respondents reported that friends/family influence was not a barrier to making healthy food choices for their children. Some of the respondents (40%) reported that occasionally, lack of time was barrier to making healthy food choices for their pre-school children. while lack of time is often a barrier to 20.9% of the respondents, 39.9% of the respondents revealed that lack of time was not a barrier to making healthy food choices for their children.

However, some of the respondents (51.8%) reported that their income level was often a barrier to making healthy food choices for their children because it has an effect on the kind of food they choose for their pre-school children. 32.7% of the respondents revealed that their income level was not a barrier and 15.5% of the respondent agreed that income level was occasionally a barrier to making healthy food choices for their children. Also, ingredient availability was often a barrier for (48.1%) of the respondents, occasionally a barrier to 25.5% of the respondents and it was not a barrier to 26.4% of the respondents in making healthy food choices for their pre-school children. The majority of the respondents (61.8%) reported that lack of preparation know-how of certain foods was not a barrier to them in making healthy food choices for their children, 19.1% revealed that lack of preparation know-how was occasionally a barrier to them, while lack of preparation know-how was often a barrier to 19.1% of the respondents because they could not feed their children food items they were unsure how to cook, even if the meal was nutritious.

Table 5 shows that there is a significant relationship between mother's socio-economic characteristics and knowledge of mothers on the importance of promotion of healthy eating among children.

### Test of Hypothesis

Table 5 Correlation Test Showing Relationship Between Mothers' Socio-Economic Characteristics and Knowledge of Mothers on the Importance of Promotion of Healthy Eating Among Children

Variables	Correlation coefficient(r)	Coefficient of determination (r <sup>2</sup> )	Percentage contribution
Age	0.081	0.006	0.017
Number of children	0.066	0.004	0.062
Number of pre-school children	0.093	0.008	0.054
Hours of work per day	0.081	0.006	0.003

Table 6 Chi-Square test showing relationship between mothers' socio-economic characteristics and knowledge of mothers on the importance of promotion of healthy eating among children

Parameters N = 1100	Variables	N	Low		Med		High		p Value
			n	%	n	%	n	%	
Marital Status	Single	30	0	0	30	2.7	0	0	0.044
	Married	1060	110	10	950	86.2	0	0	
	Widowed	10	10	0.9	0	0	0	0	
Relationship with child	Mother	1040	100	9	840	76.3	100	9	0.073
	Stepmother	30	0	0	30	2.7	0	0	
	Grandmother	30	0	0	20	2.7	10	0.9	
Ethnicity	Yoruba	930	90	8.1	750	68.1	90	8.1	0.925
	Igbo	170	20	1.8	130	11.8	20	1.8	
Religion	Christianity	840	80	7.2	660	60	100	9	0.482
	Islam	260	30	1.8	220	20	10	0.9	
Education	Yes	1060	100	9	850	77.2	110	10	0.506
	No	40	10	0.9	30	2.7	0	0	
Level of education	Primary	40	20	1.8	20	1.8	0	0	0.04
	Secondary	250	40	3.6	210	19	0	0	
	Tertiary	800	50	4.5	640	58.1	110	10	
	None	10	0	0	10	0.9	0	0	
Employment status	Not employed	20	0	0	20	1.8	0	0	0.216
	Self-employed	750	100	9	600	54.5	50	4.5	
	Civil Servant	280	10	0.9	210	19	60	5.4	
	Others	50	0	0	50	4.5	0	0	
Levels of income	Below ₦20,000	250	30	2.7	180	16.3	40	3.6	0.304
	₦20,001-₦40,000	390	50	4.5	310	28.1	30	2.7	
	₦40,001-₦60,000	160	20	1.8	140	12.7	0	0	
	₦60,001-₦80,000	120	10	0.9	110	10.0	0	0	
	Above ₦80,000	180	0	0	140	12.7	40	3.6	

The result of the correlation test shows that there is no significant relationship between the socio-economic characteristics of the respondents and the knowledge of mothers on the importance of promoting healthy eating among children at correlation coefficient greater than 0.005.

**Inclusion criteria**

The respondents were women who have children who are younger than five years old and are currently living in any of the thirty local government areas of Osun State for at least six months to be considered residents.

**Exclusion criteria**

Women who do not have children who are younger than five years old and are not residents of any of the thirty local government areas of Osun State.

**Research Implications**

The study has implications for researchers. There is a need to assess the difference in the well-being of household members, especially the vulnerable groups judged by nutritional status, in households whose food intake is the absolute prerogative of women to take decisions concerning family food. This will help to ascertain the importance of women's role in household food security.

**Practical and/ or social implications**

Generally, women determine the types and quality of foods provided for the members of the households; if they are empowered at the household level, the whole household will benefit.

**Conclusion**


This study reinforces the important challenges mothers face in promoting healthy eating habits among preschool children at home. This study revealed that affordability and knowledge of the nutrient content of foods are the major factors that influence mothers' food choices for their children. It also established that the nature of the job, level of income, lack of time and ingredient unavailability are the major barriers for mothers to making healthy food choices for their children. Parenting was considered to be a difficult task, and this was reported as an important reason for why mothers encounter these difficult everyday life situations.

**Recommendation**

We suggest that future studies investigate the improvement in mothers' lifestyles through a partnership between Welfare Organizations and the Federal Ministry of Health. The results of such studies can be useful to identify other barriers to eating healthy habits and offer strategies for improvement. It is also recommended that mothers plan their time wisely, creating a balance between their work and their family life and consciously make efforts to prepare wholesome and healthy meals for their children which will benefit their health both in childhood and adulthood.

## Biography

**Dr. Adekunle Folorunso** is a Senior Lecturer at the Department of Family, Nutrition and Consumer Sciences, Faculty of Agriculture, Obafemi Awolowo University, Ile-Ife, Nigeria. Dr. Folorunso specializes in Nutrition and food products development. He is a member of Family and Consumer Sciences Society of Nigeria (FACSSON). He researches and writes about Home Economics. Email: kunlefolly2@yahoo.com

 <https://orcid.org/0000-0002-9890-765X>

## References

- Birch, L., Savage, J. S., & Ventura, A. (2007). Influences on the development of children's eating behaviours: from infancy to adolescence. *Canadian journal of dietetic practice and research: a publication of Dietitians of Canada = Revue canadienne de la pratique ET de la recherche endietetique: une publication des Dietetistes du Canada*, 68(1), s1.
- Black, R. E., Victora, C. G., Walker, S. P., Bhutta, Z. A., Christian, P., & De Onis, M. (2013). Maternal and child under nutrition and overweight in low-income and middle-income countries. *The Lancet*, 382(9890), 427-451.
- Chetan, S. P. (2018). A Descriptive Study to Assess the Knowledge of Mothers Regarding the Nutrition for Under Five Children. *JOJ Nurse Health Care*. Juniper publishers, 7(3), 1-11.
- Cowburn, G., & Stockley, L. (2005). Consumer understanding and use of nutrition labeling: a systematic review. *Public Health Nutrition*, 8(1), 21-28.
- Dave, D., Doytch, N., & Kelly, I. R. (2016). Nutrient intake: a cross-national analysis of trends and economic correlates. *Social Science & Medicine*, 15, 158-167.
- Faith, M.S., Scanlon, K.S., Birch, L.L., Francis, L.A., & Sherry, B. (2002). Parent-child Feeding Strategies and their Meeting or Exceeding the American Academy of Pediatrics Recommendations for Total Dietary Fat. *Minerva Pediatrics*, 54(3), 179-186.
- Family Health Service. (2016). Healthy Eating for Preschool Children (2 to 5 years old). Retrieved from <http://www.startsmart.gov.hk/en/#assessed> on 13/08/2020.)
- Fox, M. K., Devaney, B., Reidy, K., Razafindrakoto, C., & Ziegler, P. (2006). Relationship between portion size and energy intake among infants and toddlers: evidence of self-regulation. *Journal of the American Dietetic Association*, 106(1), 77-83.
- Hetherington, M. M., Schwartz, C., Madrelle, J., Croden, F., Nekitsing, C., Vereijken, C. M., & Weenen, H. (2017). A step-by-step introduction to vegetables at the beginning of complementary feeding. The effects of early and repeated exposure. *Appetite*, 84, 280-290.
- Rylatt Louise & Cartwright Tina (2016). Parental feeding behaviour and motivations regarding pre-school age children: A thematic synthesis of qualitative studies. *Appetite*, 99, 285-297. <https://doi.org/10.1016/j.appet.2015.12.017>.
- Lourenço, M., Santos, C., & Carmo, I. D. (2014). Estado nutricional e hábitos alimentares em crianças de idade pré-escolar. *Revista de Enfermagem Referência*, 1, 7-14.
- Martha J., Weiwen C., (2016). Parents' barriers and strategies to promote healthy eating among school-age children. *Appetite*, 103, 157-164. <https://doi.org/10.1016/j.appet.2016.04.012>.
- McCarthy, A., Hughes, R., Tilling, K., Davies, D., Davey Smith, G., & Ben-Shlomo, Y. (2007). Birth weight; postnatal, infant, and childhood growth; and obesity in young adulthood: evidence from the Barry Caerphilly Growth Study. *The American Journal of Clinical Nutrition*, 86(4), 907-913.
- Mikkilä, V., Räsänen, L., Raitakari, O. T., Pietinen, P., & Viikari, J. (2005). Consistent dietary patterns identified from childhood to adulthood: the cardiovascular risk in Young Finns Study. *British Journal of Nutrition*, 93(6), 923-931.
- Mukherjee, R., & Chaturvedi, S. (2017). A study of the dietary habits of school children in Pune city, Maharashtra, India. *International Journal of Community Medicine and Public Health*, 4(2), 593-597.
- National Population Commission. (2006). *National Nigerian Census*. NPC, Abuja.
- Nikolic, M. (2013). Feeding children as a pillar of public health. In *First International Congress for hygiene and preventive medicine Proceedings*, Belgrade, Serbia. 436-441.
- Niškanović, J., Stojisavljević, D., Stojisavljević, S., Djikanovic, B., & Manigoda, D. (2023). Exploring possibilities for the development of healthy eating habits in preschool settings: parent's and teacher's perspectives. *Food Science & Nutrition*, 12(3), 1616-1626. <https://doi.org/10.1002/fsn3.3853>
- Pramod-Singh, G. C., Nair, M., Grubestic, R. B., & Connell, F. A. (2009). Factors associated with underweight and stunting among children in rural Terai of eastern Nepal. *Asia Pacific Journal of Public Health*, 21(2), 144-152.

- Roos, E., Lehto, R., & Ray, C. (2012). Parental family food choice motives and children's food intake. *Food Quality and Preference*, 24(1), 85-91.
- Schonfeldt, H.C., & Gibson, N. (2009). Healthy eating in the South African context. *J.FoodComp.Anal*, 22, 68-73.  
<https://doi.org/10.1016/j.jfca.2009.01.005>
- Smith, Y., Kassier, S., Nel, D., & Koen, N. (2017). The barriers that women face when choosing food for their primary school children: A case study in the Western Cape Province, South Africa. *South African Journal of Child Health*, 11(3), 129-134.
- Taylor, J. P., Evers, S., & McKenna, M. (2005). Determinants of healthy eating in children and youth. *Canadian Journal of Public Health/Revue Canadienne de Sante'e Publique*, S20-S26.
- UNICEF (2014). Pacific and Solomon Islands Ministry of Education and Human Resources.  
<https://doi.org/10.1016/j.appet.2011.04.025>  
retrieved on 04/07/2018
- Ventura, A. K. (2017). Does Breastfeeding Shape Food Preferences Links to Obesity. *Annals of Nutrition and Metabolism*, 70(3), 8-15.