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Influence of parental education levels on eating habits of pupils in Nigerian primary schools

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Abstract

This study investigated the eating habits of pupils in Nigerian primary schools based on the respective education levels of their parents.

Data were obtained using the Child Eating Behavior Questionnaire (CEBQ). Participants included a total of 144 pupils who were purposively selected from 6 primary schools. Based on responses, a cross-sectional analytic study design was implemented to investigate how parental education levels (PELs) influenced the eating habits of their children. Data assessment was performed using a one-way between-group analysis of variance at the .05 probability level.

PELs significantly affected the eating habits of participants, respectively. Specifically, low PEL was associated with more satiety responsiveness to food (F [2, 141] = 14.251, $P < .001$), higher responsiveness to food (F [2, 141] = 36.943, $P = < .001$) greater food enjoyment (F [2, 141] = 93.322, $P < .001$), greater drinking desires (F [2, 141] = 23.677, $P < .001$), and the tendency for emotional over-eating (F [2, 141] = 13.428, $P < .001$), while high PEL was associated with slower eating (F [2, 141] = 11.665, $P < .001$), fussier responses to food (F [2, 141] = 14.865, $P < .001$), and a higher tendency for emotional under-eating (F [2, 141] = 5.137, $P < .01$).

This study examined PELs in relation to the respective eating habits of their children, who were attending Nigerian primary schools. Data showed that children with parents who had high, middle, and low education levels tended to exhibit progressively worse eating habits, in descending order.

Abbreviations: CEBQ = Child Eating Behavior Questionnaire, DD = desire to drink, EOE = emotional over-eating, EUE = emotional under-eating, EF = enjoyment of food, FF = food fussiness, FR = food responsiveness, SE = slowness in eating, SR = satiety responsiveness, PELs = parental education levels.

Keywords: eating Habits, parents' education level, pupils

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The authors have no conflicts of interests to disclose.

The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

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1. Introduction

Many educators are concerned about healthy child behavior.[1–5] Research has shown that a healthy lifestyle consisting of adequate eating habits promotes child health,[6] and should thus be monitored to ensure appropriate development both physically and psychologically. Although adequate eating habits are a vital aspect of a healthy lifestyle, studies have shown that many children have irregular eating habits,[7–9] which may result in susceptibility to cardiovascular disease, cancer, stroke, diabetes, hypertension, diet-related early mortality, and economic consequences such as high medical costs, low productivity due to disability, and low output in later life.[10–14]

While these concerns have been reported in relation to gender, age, and household socioeconomic status,[2,6,7,15] there is a lack of information on how PEL affects the eating habits of children, especially in developing nations such as Nigeria. This study investigated the eating habits of 144 Nigerian primary school students, respectively based on PEL. Mean differences were thus analyzed for the following items: satiety responsiveness (SR) and PEL, slowness in eating (SE) and PEL, food fussiness (FF) and PEL, food responsiveness (FR) and PEL, enjoyment of food (EF) and PEL, desire to drink (DD) and PEL, emotional under-eating (EUE) and PEL, and emotional over-eating (EOE) and PEL.

In view of the above, this study tested the following hypotheses:

1. There are no significant mean differences in SR between students based on respective PELs.

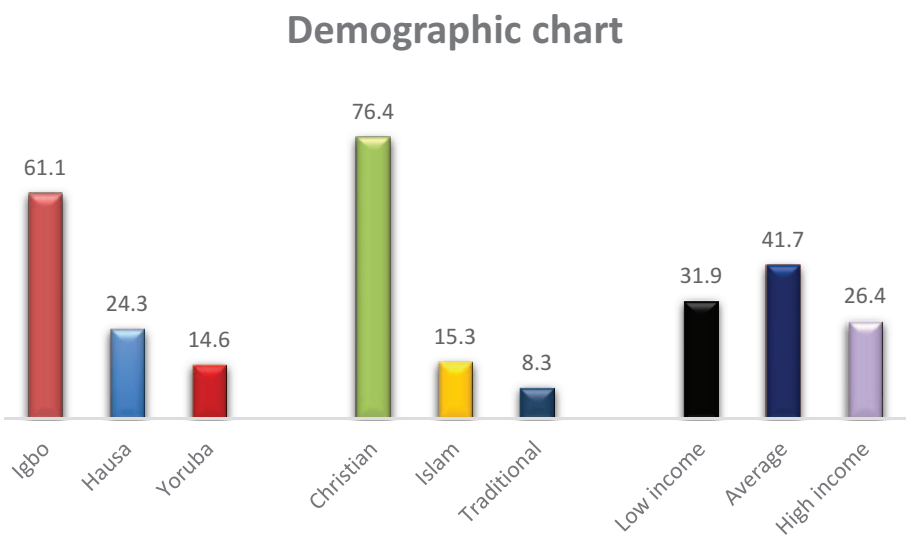

Figure 1. Demographic chart showing participants' characteristics.

2. There are no significant mean differences in SE between students based on respective PELs.
3. There are no significant mean differences in FF between students based on respective PELs.
4. There are no significant mean differences in FR between students based on respective PELs.
5. There are no significant mean differences in the EF between students based on respective PELs.
6. There are no significant mean differences in the desire to drink (DD) between students based on respective PELs.
7. There are no significant mean differences in EUE between students based on respective PELs.
8. There are no significant mean differences in EOE between students based on respective PELs.

2. Methods

This cross-sectional analytical study received ethical approval from the Faculty of Education Research Ethics Committee, University of Nigeria, Nsukka. Parents of the participants also provided informed consent. Further, the investigation was conducted following the ethical guidelines for researching human participants required by the World Medical Association's Declaration of Helsinki. A power analysis was first carried out to establish the proper sample size, which was calculated based on a target power of 0.90 at an alpha-level of 0.05 for a one-way analysis of variance test, as established using the G·Power 3.1.9.4 software.[16,17] A minimum sample size of 84 participants was thus suggested.

More specifically, this study was conducted among 144 students who were purposively recruited from a total of 6 primary schools in Abakaliki, Ebonyi State, South-East, Nigeria. Inclusion conditions were set as follows: a school must consent to data collection among participants, parents must give informed consent for each participant, parents must be able to complete questionnaires and return them to the researchers within the stipulated timeframe, and students must attend primary school. On the other hand, exclusion conditions were set as follows: students, their parents, and/or schools did not meet the inclusion conditions. Figure 1 shows information on the sample recruited from each primary school.

The Child Eating Behavior Questionnaire (CEBQ)[18] was used to evaluate participant eating habits. It is comprised of 35 items across eight subscales, including SR (5 items), SE (4 items), FF (6 items), FR (5 items), EF (4 items), desire to drink (DD) (3 items), EUE (4 items), and EOE (4 items). CEBQ items are rated on a 5-point rating scale ranging from never (0) to always (4). Previous studies have already ensured the validity of the CEBQ for measuring eating styles among children (Cronbach's alpha: 0.72–0.91; test-retest reliability, r: 0.52–0.87).[18,19] Internal consistency (Cronbach's alpha) was established for each CEBQ subscale, as follows: SR = 0.58, SE = 0.75, FF = 0.70, FR = 0.57, EF = 0.56, DD = 0.52,EUE = 0.59,and EOE = 0.59.

PEL refers to the highest education level a student's parents have achieved. This was assessed using the PEL categorization.[20] PELs were thus divided into 7 categories, including 1 = none, 2 = elementary school, 3 = some high school, 4 = completed high school/attended trade/business school, 5 = some college, 6 = completed college, and 7 = graduate work. In this study, the above categories were further condensed into 3 categories, including low = less than high school graduation, middle = high school graduation, and high = some college and above. For the analysis, low, middle, and high were scored as 1, 2, and 3, respectively.

The CEBQ questionnaires were distributed and reclaimed from respondents by 2 research assistants. More specifically, the respondents, researchers, and assistants convened in school halls to complete the questionnaires during long break periods. Respondents were given directions and provided with enough time (about 60 minutes) to answer all items. They were advised to alert the researchers or assistants if they required further clarification on any item or needed help understanding how to complete the questionnaire. These measures resulted in response and return rates of 100%.

A one-way between-group analysis of variance statistic was used to analyze the collected data. We also tested for data normality and violation of assumptions. Data were normally

Table 1

CEBQ scores across parental education levels among pupils.

Hypotheses	CEBQ Sub-scales	PELs	N	Mean	SD	*F*	*P*	95%CI
Ho_1	Satiety responsiveness (SR)	High	30	17.73	1.84	14.251	<.001	17.05–18.42
		Middle	60	18.92	2.68			18.22–19.61
		Low	54	20.43	2.04			19.87–20.98
Ho_2	Slowness in eating (SE)	High	30	17.53	1.38	11.665	<.001	17.02–18.05
		Middle	60	16.17	1.91			15.67–16.66
		Low	54	15.76	1.41			15.37–16.15
Ho_3	Food fussiness (FF)	High	30	24.53	2.33	14.865	<.001	23.66–25.40
		Middle	60	21.43	2.99			20.66–22.21
		Low	54	20.91	3.39			19.98–21.84
Ho_4	Food responsiveness (FR)	High	30	18.36	1.50	36.943	<.001	17.81–18.93
		Middle	60	20.47	2.13			19.92–21.02
		Low	54	21.83	1.45			21.44–22.23
Ho_5	Enjoyment of food (EF)	High	30	15.10	0.96	93.322	<.001	14.74–15.46
		Middle	60	17.90	1.07			17.62–18.18
		Low	54	18.37	1.19			18.05–18.69
Ho_6	Desire to drink (DD)	High	30	11.70	1.12	23.677	<.001	11.28–12.12
		Middle	60	13.17	1.14			12.87–13.46
		Low	54	13.46	1.21			13.13–13.79
Ho_7	Emotional under-eating (EUE)	High	30	18.06	1.34	5.137	<.01	17.57–18.57
		Middle	60	16.90	1.65			16.47–17.33
		Low	54	16.78	2.30			16.15–17.41
Ho_8	Emotional over-eating (EOE)	High	30	16.23	2.12	13.428	<.001	15.44–17.03
		Middle	60	17.65	1.31			17.31–17.99
		Low	54	18.02	1.39			17.64–18.40

distributed, and statistical assumptions were obtained. We also screened for missing data, but found no such problems. Statistical analyses were performed using the IBM SPSS version 22 software. Results were considered significant at $P \leq .05$.

3. Results

Table 1 shows the results of the one-way between-group analysis of variance, which was conducted to explore mean differences between the eating habits of participants based on PEL, with eating habits measured by the CEBQ. Participants were divided into 3 groups according to PEL (ie, high, middle, and low). There were statistically significant intergroup differences in regard to SR (F [2, 141] = 14.251, P = <.001). That is, participants in the low PEL group tended to be more satiety responsive to food (M = 20.43, SD = 2.04; 95%CI = 19.87. 20.98) when compared to those from the middle and high PEL groups. Further, participants in the middle PEL group (M = 18.92, SD = 2.69; 95%CI = 18.22. 19.61) tended to be more satiety responsive to food when compared to those in the high PEL group (M = 17.73, SD = 1.84; 95%CI = 17.05. 18.42). There were also statistically significant intergroup differences in regard to SE (F [2,141] = 11.665, P = <.001). More specifically, participants in the high PEL group tended to eat slower (M = 17.53, SD = 1.38; 95%CI = 17.02. 18.05) when compared to those in the middle PEL group (M = 16.17, SD = 1.91;95%CI = 15.67. 16.66) and low PEL group (M = 15.76, SD = 1.41; 95%CI = 15.37–16.15).

Next, we found statistically significant intergroup differences in regard to FF (F [2,141] = 14.865, P = <.001). That is, participants in the high PEL group tended to be fussier about their food (M = 24.53, SD = 2.33; 95%CI = 23.66–25.40) when compared to those in the middle PEL group (M = 21.43, SD = 2.99; 95%CI = 20.66. 22.21) and low PEL group (M = 20.91, SD = 3.39; 95%CI = 19.98–21.84).

There were also statistically significant intergroup differences in FR (F [2, 141] = 36.943, P < .001), in which participants in the low PEL group exhibited higher overall FR (M = 21.83, SD = 1.45; 95%CI = 21.44–22.23) when compared to those in the middle PEL group (M = 20.47, SD = 2.13; 95%CI = 19.92–21.02) and high PEL group (M = 18.36, SD = 1.50;95%CI = 17.81. 18.93). We found statistically significant intergroup differences in EF (F [2, 141] = 93.322, P < .001). Specifically, those in the low PEL group tended to enjoy food more (M = 18.37, SD = 1.19; 95%CI = 18.05–18.69) than those in the middle PEL group (M = 17.90, SD = 1.07; 95%CI = 17.62–18.18) and high PEL group (M = 15.10, SD = 0.96; 95%CI = 14.74–15.46).

We found statistically significant intergroup differences in DD (F [2, 141] = 23.677, P < .001), as participants in the low PEL group were more desirous of drinking (M = 13.46, SD = 1.21; 95%CI = 13.13–13.79) when compared to those in the middle PEL group (M = 13.17, SD = 1.14; 95%CI = 12.87. 13.46) and high PEL group (M = 11.70, SD = 1.12; 95%CI = 11.28. 12.12).

There were also statistically significant intergroup differences in EUE (F [2, 141] = 5.137, P < .01). That is, participants in the high PEL group tended to emotionally undereat more often (M = 18.06, SD = 1.34; 95%CI = 17.57. 18.57) than those in the middle PEL group (M = 16.90, SD = 1.65; 95%CI = 16.47–17.33) and low PEL group (M = 16.78, SD = 2.30; 95% CI = 16.15–17.41). On the other hand, there were statistically significant intergroup differences in EOE (F [2, 141] = 13.428, P < .001), with participants in the low PEL group emotionally overeating more often (M = 18.02, SD = 1.39; 95%CI = 17.64. 18.40) than those in the middle PEL group (M = 17.65, SD = 1.31; 95%CI = 17.31. 17.99) and high PEL group (M = 16.23, SD = 2.12; 95%CI = 15.44–17.03). Our results thus indicate that PEL significantly affects the eating habits of school children.

4. Discussion

This study investigated how PEL affected the eating habits of primary school students in Nigeria. Results showed that those that those in the low PEL group tended to be more satiety responsive to food than those in the middle and high PEL groups, while those in the middle PEL group tended to be more satiety responsive to food than those in the high PEL group, as reported in previous studies.[21,22] This study also found that participants in the high PEL group tended to eat slower than those in the middle and low PEL groups, while those in the middle PEL group tended to eat slower than those in the low PEL group. Next, participants in the high PEL group tended to be fussier about their food than those in the middle and low PEL groups, while those in the middle PEL group were fussier about their food than those in the low PEL group. This study also found that participants in the low PEL group tended to be more responsive to food when compared to those in the middle and high PEL groups, as reported by other research.[2,23] On this note, participants in the middle PEL group were more food-responsive than those in the high PEL group. Results also showed that participants in the low PEL group tended to enjoy food more than those in the middle and high PEL groups. Further, participants in the high PEL group tended to enjoy food less than those in the middle PEL group, as supported by previous research.[24] This study also discovered a trend in which participants in the low PEL group were more desirous of drinking than those in the middle and high PEL groups, while those in the middle PEL group more desirous of drinking than those in the high PEL group. Given our in-depth analysis of the chosen variables, we also noticed that those in the high PEL group tended to emotionally undereat more often than those in the middle and low PEL groups, while those in the middle PEL group tended to emotionally undereat more often than those in the low PEL group. Finally, we found that participants in the low PEL group tended to emotionally overeat more often than those in the middle and high PEL groups, while those in the middle PEL group tended to emotionally overeat more often than those in the high PEL group.

Our findings showed that most problematic eating behaviors occurred among students whose parents had low and mid-level educational attainment. Related studies have also established that parental educational attainment is among the most important determinants of healthy eating habits for children.[2,21–25] Specifically, one study[25] found that the eating habit scores of children progressively increased with higher parental education qualifications. Children whose parents had low education levels were found to have poor eating habits for most tested indicators, such as SR, SE, the desire to drink, FR, and emotional overeating. This study's findings are also in accordance with other previous studies, including those showing that low parental education was related to poor eating habits among school children[26,27] and those demonstrating a relationship between PELs and healthy eating habits.[21,22]

Despite this study's important contributions to the literature, certain limitations may have influenced its results. The use of the CEBQ dataset as derived from questionnaires completed by the parents of participants may have introduced some bias due to the possibility of under- or overestimating the eating habits of the children. Because a cross-sectional research design was used, a causal relationship could not be established between PELs and participant eating habits. Next, the sample size was small. Prospective investigations using larger samples are required to overcome these limitations. Again, caution should be taken when interpreting our findings in that we did not consider other factors (confounding factors) that may have influenced the results, such as economic status and disability. Future studies should explore the extent to which these confounding factors may affect how PEL impacts the eating habits of children.

In conclusion, children whose parents have low education levels tend to have less healthy eating habits than children whose parents have high education levels. Our findings contribute to the body of knowledge showing how PEL differentially affects healthy eating behaviors among children. Interventions designed to improve these eating habits should focus on the roles of parents in the development of eating behaviors through nutritional education and counseling, which have been suggested as viable strategies in this context.[28,29] We also suggest that school administrators make additional efforts to ensure that students benefit from nutritional education and counseling while at school.

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