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SOCIO-DEMOGRAPHIC FACTORS IN UNDER FIVE CHILDREN WITH ACUTE DIARRHOEA IN A TERTIARY HEALTH INSTITUTION IN NIGERIA

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## SOCIO-DEMOGRAPHIC FACTORS IN UNDER FIVE CHILDREN WITH ACUTE DIARRHOEA IN A TERTIARY HEALTH INSTITUTION IN NIGERIA

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### ABSTRACT

**Objective:** To determine the socio-demographic factors in under five children with acute diarrhoea.

**Design:** A prospective cross-sectional study.

**Setting:** Children's Emergency Room and Children's Outpatient Clinic of the University of Nigeria Teaching Hospital, Enugu, Nigeria.

**Subjects:** One hundred and seventy-four children below five years of age.

**Results:** Between June 2005 and May 2006, one hundred and seventy-four children aged below five years with diarrhoea were recruited for the study. They were examined. Their socio-demographic factors such as age, sex, breastfeeding status, parents' occupation/education, were obtained. The following variables did not significantly affect the prevalence of diarrhoea: age ( $p>0.05$ ), sex ( $p=0.233$ ), breastfeeding ( $p=0.590$ ), nutritional status ( $p=0.060$ ), and socio-economic status ( $p=0.955$ ).

**Conclusion:** Socio-demographic factors did not appear to influence the prevalence of acute diarrhoea among under five children in Enugu, Nigeria.

### INTRODUCTION

Diarrhoea has been defined variously by different authors. It was defined as a change in bowel habit from normal with an increase in stool volume and/or fluidity with or without an increase in stool frequency (1). Generally, the passage of three or more loose stools in a day is generally considered abnormal (2,3).

Diarrhoeal diseases are one of the leading causes of morbidity and mortality among children in developing countries (2,4-6). It is particularly serious in tropical countries where it is responsible for more than half the deaths in children under one year of age, and over 1.3 million deaths in children below five years of age (5,8).

A Nigerian child under the age of five years, will have about four to five episodes of diarrhoea a year, and a mortality of over 300,000 lives annually within this vulnerable age group (9).

Diarrhoea affects all ages (10). Young children between the ages of six to twenty four months are the most commonly and severely affected (10). Children of lower socio-economic status were found to be more at risk factor for diarrhoea-causing pathogens (10). Breastfeeding provides significant protection against diarrhoea in infancy (11). Malnutrition predisposes

to high transmission of diarrhoea (12).

### MATERIALS AND METHODS

The study was carried out at the Paediatrics Department of the University of Nigeria Teaching Hospital (UNTH) Enugu, Nigeria. One hundred and seventy-four under five children with diarrhoea were recruited consecutively as they presented to the health facility from June 2005 to May 2006. A similar number of children as controls were also recruited within the same period, and they were matched for age, sex, socio-economic and nutritional status.

Approval was obtained from UNTH Ethical Committee. Informed written consent was obtained from the parent or caregiver. They were duly educated on the need for the study and its possible outcome. A pretested questionnaire was used to obtain information on the age, sex, anthropometry, breastfeeding status, occupational and educational status of the parents. Questionnaires were administered directly to the parents and caregivers.

The social class was determined using Oyedeji's classification (13). In this case, the parental occupation and educational attainment is used to determine the social class. Each of the factors used in classifying a

child socio-economically is graded I-V. The highest and lowest social classes are assigned as grades I and V, respectively. Each parent is scored separately by finding the average score of the two factors in the social classification. The mean of the four scores (two for father and two for mother) to the nearest whole number would be the social class assigned to the child. In a situation where any of the parents is dead, the social class of the child is determined by the occupation and education of the living spouse or guardian.

The nutritional status was determined using the modified Wellcome classification of nutritional status (14).

The patients were grouped according to age, sex, nutritional status, socio-economic status, and breastfeeding status.

Data analysis was done using SPSS software. Results were presented in tables. Proportions were tested using Chi-square test. A p-value of less than 0.05 was considered significant.

## RESULTS

A total of 174 children aged 2 to 59 months were studied during the period.

*Age distribution:* Majority of the subjects (34.5%) were between two to 12 months. The mean ages for the subjects and controls were  $15.20 \pm 10.04$  months and  $14.00 \pm 10.10$  months respectively. There was no significant age difference between subjects and controls ( $p > 0.05$ ; Table 1).

*Sex distribution:* The subjects consisted of 105 males and 69 females, while the controls consisted of 94 males and 80 females. The male: female ratio for the subjects and controls were 1.52:1 and 1.18:1, respectively. The sex distribution was comparable in both groups, ( $p = 0.233$ ; Table 2).

*Nutritional status:* About ninety-two percent of the subjects were well-nourished, while 7.5% were malnourished. Among the control group, 86.2% were well-nourished, while 13.8% were malnourished. The nutritional status of the two groups was comparable, ( $p = 0.060$ ; Table 2).

*Breastfeeding:* Out of the 174 subjects, 98(56.3%) were not breastfed, while 76(43.7%) were breastfed. In the control group, 93(53.4%) were not breastfed, whereas 81(46.6%) were breastfed. When the subjects were compared with the controls, the result was not statistically significant ( $p = 0.590$ ; Table 2).

*Socio-economic class:* About forty-seven percent of the subjects and 48.3% of the controls were in the lower social class (class IV-V). About 26% of the subjects and 26.4% of the controls were in the middle class (III). The upper class (I-II) consisted of 27.0% and 25.3% of the subjects and controls respectively. The socio-economic spread of the subjects compared to the controls was not statistically significant ( $p = 0.955$ ; Table 3).

**Table 1**  
*Age distribution of the subjects and controls*

Age (Months)	Subjects	Controls	Total	p - value
	No %	No %	No %	
2-12	60 (34.5)	68 (39.1)	128 (36.8)	0.374
13-24	39 (22.4)	38 (21.8)	77 (22.1)	0.897
25- 36	42(24.1)	32(18.4)	74 (21.3)	0.190
37- 48	20 (11.5)	17 (9.8)	37 (10.6)	0.602
>48	13 (7.5)	19 (10.9)	32 (9.2)	0.347
TOTAL	174 (100.0)	174 (100.0)	348 (100.0)	

**Table 2**  
*Sex, nutritional status and breastfeeding in subjects and controls*

		Subjects	Controls	Total	p-value
		No %	No %	No %	
Sex	Males	105 (60.3)	94 (54.0)	199 (57.2)	0.233
	Females	69 (39.7)	80 (46.0)	149 (42.8)	
	Total	174 (100.0)	174(100.0)	348(100.0)	
Nutritional Status	Malnourished	13 (7.5)	24 (13.8)	37 (10.6)	0.060
	Well Nourished	161 (92.5)	150 (86.2)	311(89.4)	
	Total	174 (100.0)	174 (100.0)	348 (100.0)	
Breastfeeding	Not Breastfed	98 (56.3)	93 (53.4)	191 (54.9)	0.590
	Breasted	76 (43.7)	81 (46.6)	157 (45.1)	
	Total	174 (100.0)	174 (100.0)	348 (100.0)	

**Table 3**  
*Socio-economic class of the subjects and controls*

Social Class		Subjects	Controls	p-value
		No %	No %	
Upper Class	I	18 (10.3)	14 (8.1)	0.518
	II	29 (16.7)	30 (17.2)	
Middle Class	III	45 (25.9)	46 (26.4)	0.903
Lower Class	IV	49 (28.1)	48 (27.6)	0.733
	V	33 (19.0)	36 (20.7)	
Total		174 (100.0)	174 (100.00)	

### DISCUSSION

Diarrhoeal disease remains a heavy burden in children in the developing world (15-17). Despite the concerted efforts by the World Health Organization and other agencies, much still remains to be achieved in combating diarrhoeal diseases in the developing countries, including Nigeria.

In this study, the highest frequency of diarrhoeal cases were among the subjects in the age group 2-12 months, and the 13-24 months age groups, and this is similar to reports by other authors (10,18-20). This may be explained by the fact that at this stage, the children have started to move about and they put contaminated objects into their mouth.

The age range 37-59 months had the lowest

frequency of diarrhoea in this study. This is probably because of less tendency to put contaminated objects into the mouth-a finding similar to that of Oni and colleagues (21).

There was a higher percentage of diarrhoea among males than females. This was in agreement with the study of Coker *et al* (22) in Lagos, and Jinadu *et al* (10) in Ondo State. This may be due to the fact that males are generally more active than females, and therefore are more likely to pick particles from the ground and put into their mouth. However, there was no significant sex difference between those with positive stool culture and those with negative stool culture.

Eighty-two (47.1%) of the total population of

the subjects in the present study were in the lower social class group (class IV-V). Oyedeji (13) in a study of the socio-economic and cultural background of children in Ilesha, Nigeria reported that 65% of their own patients were in the lower social class (IV-V). The preponderance of the subjects from the lower socio-economic class in the present study therefore is in agreement with the pattern observed in Ilesha. This could be because this group is more likely to have poor water supply, poor personal hygiene, improper food preparation, poor weaning practices and overcrowding which predispose to high rate of transmission of diarrhoea (23).

The malnourished group accounted for 7.5% of the subjects with diarrhoea, while the well-nourished group accounted for 92.5%. The same trend was observed among the controls studied.

There was a higher rate of diarrhoea among children who were not breast-fed compared to those who were breast-fed. This finding is similar to a previous study which showed that exclusively and predominantly breastfed infants suffer less episodes of diarrhoea than those who were not exclusively and predominantly breastfed (3). The finding, however, differs from previous studies, (11,24) which recorded high rates of diarrhoeal diseases in breastfed infants. It is known that breastfeeding provides a significant protection against diarrhoeal disease (11). Breastfed children however, can have diarrhoea usually from lack of exclusive breastfeeding, or when they put contaminated objects into their mouth. This may have accounted for the high rate of diarrhoea even among the breastfed children.

In conclusion, diarrhoea remains a major childhood killer disease, even in our environment. As a result of this, concerted efforts should be made to reduce its effects. These should include, but not limited to, encouraging mothers to carry out exclusive breastfeeding, health education on personal and environmental hygiene, proper food handling, proper weaning practices and improvement in housing.

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