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INTESTINAL WORMS AND NUTRITIONAL STATUS OF UNDER-FIVES IN JOS, NIGERIA: ANY RELATIONSHIP?

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ABSTRACT

Objective: This study was carried out in Naraguta village a periurban settlement in November, 1999 to determine the relationship between nutritional status and intestinal helminthiasis.

Method; A total of 256 children aged 12- 56 months were studied. The subjects were selected through a house – to house visit. Their weight, and stool samples were collected and analyzed. Relevant information were provided by their by their mothers

Results: Out of the 256 children recruited 85 (33.2%) had intestinal parasites with Ascaris lumbricoides occurring most frequently (10.2%) This was followed by a mixed infection of Ascarriasis and hookworm (5.5%). out of the 85 infested children 49 (57.6%) were underweight, 56 (65.9%) stunted and 72 (84.7%) wasted. There was statistically significant association between intestinal worm infection and weight – for – height measurements.

Conclusion: The prevalence of intestinal of intestinal worms in the studied community was considered high. Mass de – worming of under fives in this community was suggested as one of the measures that will enhance their nutritional status.

Key words: Nutritional status, household, under fives, helminthiasis.

INTRODUCTION

Nutrition has become very important in both preventive as curative health care studies have shown that communities with the highest infant and childhood morbidity and mortality are also those with the highest prevalence of malnutrition[1-3] Frequently suggested causes of malnutrition are poverty, low parental education, poor sanitation, low food intake, malnutrition, diarrhoea and infection[4,5]. Generally under nutrition causes impaired physical growth and development. Some adult intestinal parasites live in an excellent physiological position such as the intestine where they deplete the nutrient of the host. Since they are commonly located in the jejunum of the smell intestine where most nutrient digestion and absorption take place and where most antigenic components and toxic bioactive compounds produced by the worms maybe easily absorbed, helminthic infection therefore plays an important role in childhood nutrition[6].

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Intestinal parasites may directly affect the nutritional status of child basically by causing either a decrease in nutrient intake or a function increase in the body's nutrient requirement.[7] There effects would be much likely to achieve clinical significance when a child is heavily infested with parasites, has a marginal nutrient intake and/or already has other debilitating infections[6,7]. In the case of Ascaris, infection are most common and heaviest in children of pre – school age who are also most likely to suffer from or succumb to protein energy malnutrition, malaria and a variety of other intestinal infections[8]. Intestinal parasitic infection unquestionably constitutes a public health problem. This study is therefore aimed at assessing the prevalence of helminthiasis and its relationship to the nutritional status of under-five children in Naraguta a peri – urban village in Jos, Nigeria.

METHODOLOGY

This study was carried out in Naraguta, a periurban village located at the out skirts of Jos metropolis, the capital city of Plateau State situated in Guinea savannah belt of Nigeria. The community had an

estimated population of 3,526[9]. The inhabitants are mostly Moslems whose main occupations are farming, leatherwork, trading and pottery. Only few house have pipe borne water while majority depends mainly on shallow well for their water supply. No stream or river was identified close to the community during the study. All households in the village formed the sampling frame. House-to-house visit, sampling only households with under-fives was done. Where there was more than one child between 12-59 months age bracket balloting was applied to select an index child. Children with diarrhoea or sick were excluded. Bathroom weighing scale and heightometer were used for weighing and determining their heights respectively. Two measurements were taken at each instance for an average reading. Measurements were recorded to the nearest 0.1q values. Children, who could not stand, were measured using an infantometer (a calibrated flat wood). Their weights were also determined by weighing mother and together and then mother to get the difference in their weight. Their nutritional status was assessed using weight – for – age, weight for height and height for age measurements. There measurements were expressed on standard deviations above or below the median value for corresponding sex and age of WHO reference population[10]. Normal was defined as weight or height / length for age and sex below – 2SD of the reference value. Wasting was also defined as weight for height below – 2SD of reference value and stunting as height for age sex below -2SD reference value Mother were labelled specimen bottles to collect their children's stool the following morning. These were retrieved same day of collection and stored in laboratory refrigerator until; analyzed. The standard saline fiscal smear technique as described in medical laboratory manual was used as a guide by a laboratory technologist who analyzed stool samples[11]. Parasitic load was not done. Children who found with intestinal worms were dewormed. Data was analyzed using EPI-INFO version 5 computer software.

RESULTS

Out of the 256 children studied, 85 (33.2%) had intestinal worms (Table 1) Ascaris lumbricodes alone had the highest frequency (10.2%) This was followed by a mixed infection of Ascaris lumbricodes and hookworm (5.5%). One hundred and fifty one (59.0%) wasted. Out of the 151 children found to be under weight 49 (57.6%) had intestinal worms (Table 11) for those children stunted, 65.9% were fasted with intestinal parasites (Table 111) Seventy– two (84.7%) out of the children who were wasted had intestinal parasites (Table IV).

Table 1: **Distribution of Children and intestinal parasite**

Parasite	*frequency*	%
Ascaris lumbricoides	26	10.2
A. lumbricoides + Hookworm	14	5.5
Taenia Spp.	13	5.0
E. vermicularis	10	3.9
A. lumbricoides + S. mansoni	10	3.9
Hookworm Spp.	8	3.1
H. nana	4	1.6
No parasites	171	66.8
Total	256	100.0

Table 11. **Presence of intestinal worms and weight–for-age distribution**

Parasite	*Stunted*	%	*Normal*	%	Total
Present	56	65.9	29	34.1	85
Absent	130	76.6	41	24.0	171
Total	186	72.7	70	27.3	256

$X^2 = 2.97$, df = 1, p> 0.05

Table 111. **Presence of intestinal worms and height – for-age distribution**

Parasite	*Stunted*	%	*Normal*	%	Total
Present	56	65.9	26	34.1	85
Absent	130	76.0	41	24.0	171
Total	186	72.7	70	27.3	256

$X^2 = 2.97$, df = 1, p> 0.05

Table IV. **Presence of intestinal worms and weight–for–height distribution**

Parasite	*Wasted*	%	*Normal*	%	Total
Present	72	84.7	13	15.7	85
Absent	122	71.3	49	28.7	171
Total	194	75.8	62	24.2	256

$X^2 = 5.6$, df = 1, p < 0.05

DISCUSSION

The nutritional assessment using anthropometrical indicator showed that 59.9% of the studied children aged 12 -59 months were underweight. This implies that at least one out of every two children in the community has protein energy under nutrition. Stuntin was also a problem in the community as 186 (72.7%) of the children or almost three out of every four children were stunted or suffered from chronic under nutrition. The general prevalence rate for wasting was also high, 194 (75. 8%) as at least three out of

every four were wasted. Factors contributory to this poor nutritional status of the children may include worm infestation. Eighty five (33.2 %) of the children were found to be infested with intestinal parasites Ascaris lumbricoides was the most prevalent (10.2 %) followed by a mixed infestation of Ascaris lumbricoides and Hookworm pp (5.5%) then by Ascris lumdricoides and Schistosoma mansoni 3. 9 %) respectively. The children with intestinal worm infestation and classified as underweight (57. 6%) were proportionally more than those with normal nutritional status (40. 4%) without worms (Table 11). Although this difference was not statistically significant $p > 0.05$ it s informative. Those children who had worm infestation and classified as stunted were also proportionally more (65.9%) as compared to non – stunted children (24.0%) without worms. This difference was also not statically $P > 0.05$ and those not wasted and no intestinal worms (28. 7 %) was statically significant. $P < 0.05$. Wasting is known to be a measure of acute nutritional status in the absence of diarrhoea. Worm infestation may be implicated in this poor nutrition as children who had diarrhoea were exclude from study. Stunting is also known to be a mark of chronic nutritional derangements. There has been an established relationship between Ascarriasis and general under nutrition.[6] It has been demonstrated that a high prevalence of intestinal parasitic infection exist among children of slums, shanty towns and squatter settlements.[12] intestinal parasitic infection persist and flourish wherever poverty, inadequate sanitation, insufficient health care and over crowding are entrenched[8] Ascariasis is a mirror of socioeconomic status, a reflection of environmental sanitary practice and an indicator of the presence or lack of health awareness and health education in a given community .[8] There is an increasing evidence not only of synergistic relationships between malnutrition and infection but also between one infection and another [(8)] In the case of Ascariasis, infestation is most common and heaviest in children of pre- school age who are also most likely to suffer environmental from or succumb to protein energy malnutrition. In addition to deworming, a pragmatic environmental sanitation will ensure a worm free environment for an enhanced nutritional status of the children in this community.

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