

## Studies on the prevalence of tapeworm infection in Yobe State indigenes, Nigeria

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**Abstract:** A survey using sedimentation technique and gross examination of stool samples for tapeworm ova and segments respectively in human patients in Potiskum, Nigeria was conducted between November, 2003 and April, 2004. Of the 210 patients examined, 9(4.3%) were infected with tapeworms, with more males 6(6.6%) compared with females (2.5%) ( $p>0.05$ ). The tapeworms recorded were *Hymenolepis nana* 8(88.9%) and *Taenia saginata* 1(1.1%) ( $p<0.05$ ); with age groups between 17 and 22 years having the highest prevalence of 4 (1.9%).

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### Introduction

Intestinal tapeworms are among the earliest known human parasites, with an estimated 124 million people infected worldwide [1], with their distribution in humans corresponding to that of their intermediate host. Prevalence is normally low but very much dependent on cultural factors, level of veterinary control and hygiene especially in tropical Africa with an above 10% rate. A prevalence of 2.1% for taeniasis was reported [2] for the Bauchi Plateau and 4.2% for the semi arid zone of Borno State [3], however there is a dearth of data on the situation in the North eastern State of Yobe, hence the need to define the status of tapeworm infection among its people and to proffer ways of prevention.

### Materials and Methods

**Patients consent and ethical consideration:** Before the commencement of this study, an approval was sought and obtained from the administrative authority of the Potiskum General Hospital, and patients clearly informed on the objectives, design and merits of the study.

**Sample collection:** A total of 210 stool specimens for this study were collected into clean universal plastic wide mouthed bottles and taken to the Parasitology Laboratory of the Potiskum General Hospital for examination.

**Parasitological examination:** The stool samples were examined grossly for tapeworm segments which were fixed in 10% formalin,

later dehydrated in 70% alcoholic and stained with Mayer's borax carmine for 6 hours, destained in 1% hydrochloric acid. The tapeworm segments were further dehydrated with ascending grades of alcohol, (70, 90, and 100%), cleared in cedar wood oil, and mounted on clear glass slides using Canada Balsam under a cover slip. The slides were the examined at x 40 objective of the light microscope, and identified using the head suckers, armed or unarmed rostellum, uterine lateral branches, number of ovaries in gravid segments, presence or absence of sphincter muscles [3,4]. Data were statistically analyzed at "p" value of 0.05 applying the students "t" test [5]

**Stool examination using sedimentation:** 1 gram of stool was emulsified in saturated salt solution in a mortar, strained into centrifuge tubes and centrifuged at 12,000g for 5 minutes, the supernatant was decanted and the sediment examined on glass slides under a cover slip for tapeworm eggs at x40 objective.

### Results

The prevalence of human intestinal tapeworms as shown in Table 1 indicates that 9(4.3%) of the 210 patients examined were infected. More male patients 6(6.6%) were infected ( $P>0.05$ ) with a peak between age groups of 17 and 22 with 3 (50.0%) evenly spread from age groups of 5-10; 11-16; and 17 - 22 with 1 (33.3%) respectively (Table 2).

Table 1: Prevalence of tapeworms among out – patients attending General Hospital Potiskum, Nigeria.

Tapeworm	No. (%) infected (n=210)
<i>Taenia saginata</i>	1 (11.18)
	p <0.05
<i>Hymenolepis nana</i>	8 (88.9)
Total	9 (4.3)

Table 2: Prevalence of tapeworm infection based on the sex and age of the patients

	No (%) infected		Total Prevalence
	Males (n=91)	Females (n =119)	
All patients	6 (6.6)	3 (2.5)	9 (4.3)
Age groups:			
5-10	0 (0.0)	1 (33.3)	1 (0.5)
11-16	1 (16.7)	1 (33.3)	2 (0.9)
17-22	2 (50.0)	1 (33.3)	4 (1.9)
23-28	0 (0.0)	0 (0.0)	0 (0.0)
29-34	1 (16.7)	0 (0.0)	1 (0.5)
35-40	1 (1.7)	0 (0.0)	1 (0.5)
41-46	0(0.0)	0(0.0)	0(0.0)

## Discussion

This study on tapeworm infection in Yobe State indigenes has indicated that though infection is of low prevalence mainly by *Taenia saginata* and *Hymenolepis nana* both of a zoonotic status supports the report that they are the most common tapeworms of man in the tropics and subtropics causing a variety of abdominal symptoms [3,6]. Also the finding of more cases in adults within the ages between 17-22 contrasts with that by [3] that tapeworms are parasites of any age from 2 years onward and that the chief factor of maintaining transmission is the unsanitary disposal of human faeces and of eating insufficiently cooked meat or in the case of *Hymenolepis nana* infection can be maintained in rodents and accidentally infect humans [4].

In conclusion human tapeworms are a serious public health problem worldwide. Therefore the Yobe community should improve on its socio- cultural and sanitary practices, for a healthy population.

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