

Prevalence and Public Health Implications of Intestinal Parasites of Dogs in an Urban Area of Akwa Ibom State, South-South, Nigeria

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ABSTRACT

Dogs are known to perform series of functions that are beneficial in the human society and also have been known to cause environmental contamination and inconveniences as a result of their defaecation and urination. In addition, these dogs harbour a variety of potential pathogenic intestinal parasites that constitute major threat to public health. A total of 328 faecal samples of dogs obtained by house to house collection were examined microscopically. The overall prevalence was 61.6%. Six helminth parasites namely *Toxocara canis*, *Dipyllobotrium latum*, *Dipylidium caninum*, *Ancylostoma* spp, *Uncinaria stenocephala* and *Strongyloides stercoralis* were recovered. Dogs from the ages of 60 months and above had the highest prevalence of 19.2% while those not more than 12 months recorded the lowest prevalence of 10.4%. There was no statistical significant difference in the sex-related prevalence. Dogs should be checked from depositing their faeces in areas like playgrounds where children come in contact with them. Regular mass faecal examination for dogs is also strongly advocated.

Keywords: Prevalence, Intestinal parasites, Public Health Implications, Akwa Ibom State.

INTRODUCTION

Dogs are the most successful canids adapted to human habitation worldwide¹ and they are known to perform series of cultural, social and economic functions in the human society². In spite of their beneficial effects, dogs have also been known to cause a range of environmental problems in the community. These include environmental contamination and inconvenience as a result of their defaecation and urination³. In addition to causing environmental contamination, dogs like many canines have been reported to harbour a variety of intestinal parasites, some of which can infect livestock, wildlife and humans, and as such they constitute a major threat to public health^{4,5}. Some of the zoonotic infections include cutaneous larval migrans, tungiasis and hydatid disease.^{6,7,8} Several reports have documented prevalence of dog parasite in various locations around the world.⁹⁻¹⁴ Some of these intestinal parasites of dogs include *Toxocara canis*, *Ancylostoma braziliense*, *A. caninum*^{15,16}. Because of the increased risk of exposure to these zoonotic infections resulting in an equally increased disease transmission and poor level of hygiene in the community, this study therefore

aims to estimate the prevalence of intestinal parasites of dogs in an urban area of Ikot Ekpene in Akwa Ibom State, South-South of Nigeria. This is in order to properly educate the public and also provide a guide in establishing more preventive measures against such diseases.

MATERIALS AND METHODS

Study Area

This study was carried out in the Government Residential Area (GRA) of Ikot Ekpene urban and the bordering villages of Ikot Obong Edong, Nkap and Ifuho, all in Akwa Ibom North West Senatorial District. The study was conducted within 6 months, from August 2011 to February 2012 in the bordering villages of Ikot Obong Edong, Nkap and Ifuho, all in Akwa Ibom North West Senatorial District.

Collection of Samples

A house-to-house sample collection method was employed in collecting an average of 5g of fresh faecal samples into clean, dry universal containers from apparently healthy dogs after obtaining the consent of their owners. Careful attention was paid to the collection of the dog faeces so that each specimen was from a different dog. The aims and rationale of the investigation were carefully explained to the dog owners thereby getting their full cooperation and understanding and these made it possible to ensure that faeces from humans or other animals were not substituted for those of dogs.

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Darning: An Effective and Safe Technique for Open Inguinal Hernia Repair in Resource Limited Settings

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ABSTRACT

Current practice recommends the use of bio-prosthesis for inguinal hernia repair because of its low recurrence rates and ease of repair. These materials are expensive and not readily available to hernia surgeons practicing in low income countries. Alternative repair techniques are often employed for hernia repair in these countries. We assessed for the effectiveness of polypropylene darning technique as an alternative tension-free repair in fit young adults. Healthy adults in ASA I and II presenting with simple inguinal hernia were scheduled to undergo ambulatory two-layer polypropylene darn repair of the posterior wall of the inguinal canal and were followed for three years for evidence of pain, wound haematoma, wound infection, stitch sinus, bleeding or hernia recurrence. Seventy six repairs were done in 65 adult patients; 49 males and 16 females. Acute pain was complained of by 33 (50.6%), stitch sinus/granuloma by 6 (9.2%) and wound haematoma by 1 (1.5%) patient. No cases of wound infection or hernia recurrence were recorded in three years. Darning is an alternative, effective and safe tension-free technique for repairing the posterior wall of the inguinal canal in the absence of prosthetic bio-materials.

Keywords: Inguinal hernia, darn repair, tension-free, safe, effective.

INTRODUCTION

Inguinal hernia is the most common form of abdominal wall hernia. The pathology predominantly affects males with a lifetime risk of 27% compared to 3% in females.¹ In the USA approximately 800,000 hernias are repaired annually, most as elective surgery.² Inguinal hernias in Africans are frequently larger in size (Plate I), of longer duration and less likely to be repaired when compared to the disease in Caucasians; most present with obstruction or strangulation³ with mortality of nearly 90% for cases not seen in hospital and 40% for hospital cases.⁴ Hernias contribute significantly to poor economic outlook of the continent.

The optimal surgical repair for inguinal hernias is not determined. Best evidence strongly recommends tension free repairs because of its low recurrence. In particular, the Lichtenstein technique is popular in developed economies. This technique is easy and simple to learn, is done on an ambulatory basis and the post-operative recurrence rate is low.⁵ Prosthetic materials for open tension-free hernia repair are however

expensive and not widely available⁶ in the West African sub-region and the technicalities of the repair are not commonly available. Therefore open tension repairs, which are associated with high hernia recurrence rates, are still commonly practiced in the sub-region.

An alternative but simple tension free repair technique using sutures is darning. It is cheap, the materials for repair are readily available and the technique can easily be learnt and practiced.

Where properly and appropriately executed, darning produces outcomes similar to and as effective as mesh repair in reducing the incidence of hernia recurrence. Maloney's darning technique involves a two-layered darning. This technique employing either nylon or polypropylene sutures could suffice for inguinal hernia repair in resource poor settings pending the availability and affordability of synthetic mesh as well as acquisition of the technical skills for tension free mesh repair for inguinal hernia.

This is an observational study with the intention to treat, carried out over a minimum period of four years and will evaluate the early (bleeding, haematoma, stitch sinus and wound infection) and late (chronic pain and hernia recurrence) outcome measures of inguinal hernia repair using polypropylene darning technique as an option of tension-free repair. It will be limited to only patients in ASA I and II as an ambulatory procedure.

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2. Dionne CE, Dunn KM, Croft PR. A Consensus approach toward the Standardization of back pain definitions for use in prevalence studies. *Spine* 2008;33:95-103.
3. Freburger JK, Holmes GM, Agans RP et al. The rising prevalence of chronic low back pain. *Arch Intern Med*. 2009;163:251-8.
4. Loney PL, Stratford PW. The prevalence of low back pain in adults. A methodological review of literature. *Phys Ther* 1999;79:384-96.
5. Peter MK, Jennifer LK. The epidemiology of low back pain in primary care. *Chiropr Osteopath* 2005;13:13-18
6. Quinette AL, Linzette DM, Karen G. The prevalence of low back pain in Africa; a systematic review. *BMC Musculoskeletal Disorders* 2007;8:105-10.
7. Mijiyawa M, Oniankitan O, Kolani B, Koriko T. Low back pain in hospital outpatients in Lome(Togo). *Spine* 2000;67:533-8.
8. Moses G, Stephen M, Didace B. Aetiology of low back pain in Mulago hospital Uganda. *Afr Health Sci* 2005;5:164-7.
9. Ogunbode AM, Adebuseye AL, Alonge TO. Prevalence of low back pain and associated risk factors amongst adult patients presenting to a Nigerian Family Practice Clinic. *Afr J Prm Health Care Fam Med*. 2013;5. Art 441, 8 pages.
10. Omokhodion FO. Low back pain in a rural community in South-west Nigeria. *West Afr J Med* 2002;21:87-90.
11. Omokhodion FO. Low back pain in urban community in South-west Nigeria. *Trop Doct* 2004;34:17-20.
12. Sanya AO, Omokhodion FO, Ogwumike OO. Risk factors for low back pain among

The samples were immediately labelled and transported to the Parasitology Laboratory where they were stored at 4°C until they were ready for examination.

Processing and Examination of Samples

The faecal samples were analysed using the Direct Microscopic Method and Formalin-Acetone Concentrated Method. For the direct microscopic method, basically a drop of physiological saline was placed on one end of a clean slide and a drop of iodine on the other end. With an applicator stick, about 2mg of the faecal sample was emulsified with the saline and a similar amount with the iodine to make thin preparations. These two preparations were covered with a cover glass and systematically examined for larvae, ciliates, helminth eggs, cysts and oocysts using $\times 10$ and $\times 40$ objectives, respectively.

For the concentration technique, about 1g of each stool sample was taken in a 15ml centrifuge tube containing 10ml of 10% formol-water. Formol-acetone concentration technique as described by Parija *et al.*¹⁷ which substitutes acetone in place of ether was followed to prepare the samples for microscopy.

Identification of Parasite Eggs, Cysts and Larvae

This was based on the microscopic and morphological appearances of the eggs, cysts and larvae seen during examination. Microscopic appearances of the eggs and cysts were then carefully compared with those in standard texts, literatures and micrographs for proper identification.

RESULTS

A total of 328 faecal samples collected from 219(36.3%) males and 109(25.3%) females dogs were examined for intestinal parasites. Out of the total number examined, 202(61.6%) were found to harbour various parasites either as single or mixed infections. Six helminths parasites namely *Toxocara canis*, *Diphylobotrium latum*, *Dipylidium caninum*, *Ancylostoma spp*, *Uncinaria stenocephala* and *Strongyloides stercoralis* were recovered.

Table 1 shows that *Toxocara canis* had the highest prevalence of 17.4% while *Strongyloides*

stercoralis had the lowest prevalence of 2.7%. The prevalence of the various intestinal helminths recovered in relation to the sex of the animals sampled is presented on Table 2. Of the 328 faecal samples examined, 119(36.3%) males and 83(25.3%) females were infected, respectively (Table 2). There is no statistical significant difference ($p > 0.05$) in the level of sex-related prevalence obtained in this study.

Table 3 shows the age-related prevalence of the helminth parasites in this study. The ages of the dogs were categorized in four groups. The highest prevalence of 19.2% was recorded for dogs from the age of 0-12 months and above while the lowest prevalence of 4.0% was recorded for dogs older than 60 months in age.

Table 1: The Distribution of Intestinal Parasites Found in the Dogs Examined in the Study Area (N=328)

Parasite	No. Infected	Prevalence
<i>Toxocara canis</i>	57	17.4
<i>Diphylobotrium latum</i>	29	8.8
<i>Dipylidium caninum</i>	16	4.9
<i>Ancylostoma spp</i>	38	11.6
<i>Uncinaria stenocephala</i>	53	16.2
<i>Strongyloides stercoralis</i>	9	2.7
Total	202	61.6

Table 2: The Infection Rate of the Examined Dogs with Intestinal Parasites Based on Gender

Sex	No.Examined	No. Infected	Percentage Infected
Male	219	119	36.3
Female	109	83	25.3
Total	328	202	61.6

$P < 0.05$

Table 3: The Infection Rate of the Examined Dogs Based on Age Groupings

Age (months)	No. Examined	No. Infected	Percentage Infected
0 - 12	92	64	19.5
13-36	107	85	25.9
37-60	97	40	12.2
>60	32	13	4.0
Total	328	202	61.6

DISCUSSION

In the last 30 years, the number of dogs has increased considerably in many cities and towns. In this part of the world where this study was carried out, dogs are often used to perform a range of functions like hunting, provision of security alerts and anti-crime purposes, meat delicacy as well as companions¹⁸ or may be associated with high level of self esteem^{19,20}. In spite of these benefits, dogs have been incriminated in the transmission of zoonotic infections^{21,22}.

This study establishes the existence of gastrointestinal parasites in apparently healthy domestic dogs in Ikot Ekpene metropolis of Akwa Ibom State. All the parasites reported in this study have been previously documented as being found in dogs globally but with significant difference in prevalence^{5,23}. The overall infection prevalence recorded in this study is 61.6%. The result obtained here is in agreement with the result of earlier study by Ugbomoko *et al*²⁴ who got 68.4% prevalence in a community-based study of parasites of importance for human health involving 396 dogs in Ilorin city. Anosike *et al*²⁵ however examined 554 faecal samples of dogs and got a prevalence of 81.9% in their study on aspects of intestinal helminth parasites of dogs in Owerri.

The parasites identified in this study were *Toxocara canis*, *Dipyllobotrium latum*, *Dipylidium caninum*, *Ancylostoma spp*, *Uncinaria stenocephala* and *Strongyloides stercoralis*. The presence of these parasites is a serious indication of the poor level of hygiene and degree of environmental contamination with infective stages of these parasites. *Toxocara canis* which recorded the highest prevalence of 17.4% is the aetiologic agent of visceral migrans which occurs when man ingests infective eggs of *T. canis*. Because man is an abnormal host, this results in the inability of the larval stage to develop into an adult worm. The larvae will then migrate through the tissues resulting in visceral larval migrans. Sometimes, larvae may migrate to the brain or find their ways to the eyes, resulting in serious consequences.

Our findings show low infection prevalence rate of 2.7% for *Stroglyoides stercoralis*, the least in this study. This soil-transmitted parasite is one of the most neglected among the Neglected Tropical Diseases (NTDs).

The low prevalence recorded may be due to the diagnostic methods used in this study, which have low sensitivity for *S. stercoralis* or failure to detect it altogether^{26,27,28}. Probably, the parasitological diagnostic tools specific for *S. stercoralis* infection like the Koga Agar plate culture, even though, consumes more resources and time than the most commonly applied methods²⁹ could have increased the prevalence rate.

The prevalence of intestinal parasites according to gender of the dogs in this study is 32.6% and 29.0% for males and females, respectively. There is no statistical significant difference ($p>0.05$) between the two gender categories. This is in line with earlier studies by Daryani *et al*⁹ and Yakob *et al*³⁰. However, Umar³¹, in a separate study in Nigeria, reported female dogs to be more likely to contract intestinal nematodes than male dogs.

Generally, humans acquire some of these parasitic infections by ingesting faecally contaminated food or, as is more common in children, by eating dirt or soil that has been contaminated by dog faeces. Flies are also capable of transmitting infective ova which once ingested, may develop and are carried to the liver and other organs resulting in very serious consequences because it can safely be assumed that, as the possibility of contact with animal faeces is reduced, so is the possibility of acquiring a parasitic infection, restrictions on where dogs can defecate are essential. The risk of parasitic disease can be reduced by establishing and enforcing strict laws and byelaws concerning dogs, and by informing the general public of their responsibilities both to their pets and to their fellow citizens.

It is most important that dogs be discouraged from depositing their faeces in areas where children come in contact with them, for example, at playgrounds and city parks, in particular. Ideally, all dogs should have regular faecal examinations for the sake of their health and the health of the people who own and are in regular contact with them. This, however, presents a number of practical problems. The cost of examination and probably that of prophylactic treatment may be seen as unwarranted thereby increasing the chances of cross-infection. The natural habits of these pets also expose them to many other sources of infection, such as the faeces of other, possibly infected, animals and rodents.

Table 2: Prevalence of low back in the study subjects

Low back pain	Male n=176	%	Female n=224	%	Total N=400	%	X ²	P - value
Yes	61	34.7	63	28.1	124	31.0	1.97	0.16
No	115	65.3	161	71.9	276	69.0		

DISCUSSION

The prevalence of low back pain in this study was found to be 31.0%. This compares favourably with finding from other studies.^{7,8,10} Omokhodion in a community-based survey of the prevalence and risk factors of low back pain among rural population in South-West Nigeria, reported a prevalence of 34%.¹⁰ Mijiyawa and his colleagues in a study of low back in hospital outpatients in Lome, Togo, reported a prevalence of 33%.⁴ One multicentered study also reported a prevalence of 33% in Belgium.⁴ However other countries such as America, Sweden, United Kingdom and Canada, in the multi-centered study had low prevalence rates compared to that obtained in this study.⁴

Other studies^{7,11,13,16-18} reported higher prevalence rates of low back pain when compared to that in this study. Ogunbode and his colleagues in UCH, Ibadan, reported a prevalence of 46.8% in their General outpatient clinic.⁹ Omokhodion reported a prevalence of 39% in an urban population in the South-West of Nigeria.¹¹ Studies on specific occupational groups have produced much higher prevalence rates. A study by Odebiyi et al On work-related musculo-skeletal disorders among commercial motor drivers and private automobile drivers in Lagos, reported low back pain prevalence rates of 96% and 88% respectively.¹⁸ Fabunmi, Odunaiya and Aba reported prevalence rate of 72% among peasant farmers in a rural community in South-West Nigeria.¹³ Similarly, Sikiru and Shmaila in their study of low back pain among Nurses in Nigerian and Ethiopian specialized hospitals, reported a prevalence of 70.8%.¹⁶ The high prevalence rates reported by Odebiyi et al, Fabunmi et al, Sikiru and Shmaila is probably a reflection of how common low back pain is in above mentioned specific occupational groups.

This study was not focused on any occupational group.

The prevalence of low back pain in this study was higher among men compared to women. In a similar study by Fabunmi et al¹³, low back pain was also found to be higher among men than women. The reason attributable to this was that men usually engage in more heavy physical work load compared with women. Other researchers have also reported a higher prevalence of low back pain in men.¹⁹ on the contrary, however, some studies have reported a higher prevalence among women compared to men.^{20,21}

Occupational variations, cultural differences, duration of study, time of study, place of study and even dissimilarities in question phrasing may cause variation in the prevalence rates obtained in different studies. These factors also may have been responsible for the differences between the prevalence rate of low back pain observed in this study and those of the above mentioned studies.

This study was hospital-based rather than community-based; and the responses given by the subjects on low back pain perception were subjective. These were the limitations of this study. There is need for a community-based study with an objective assessment of low back pain to be carried out in this and other communities.

In conclusion, the prevalence of low back pain in this study is relatively high and calls for greater awareness among medical practitioners. Health education on low back pain and its prevention should be encourage.

REFERENCES

- Hoy D, Brooks P, Blyth F, Buchbinder R: Epidemiology of Low back pain. Best Practise & Research Clinical Rheumatology 2010;24:769-81.

The information available on low back pain is scanty in resource- poor countries like Nigeria. This may be attributed to the fact that low back pain is perceived to be of little public health importance compared to medical conditions like HIV/AIDS, Diabetes Mellitus and Hypertension.

The aim of this study was to determine the prevalence of low back pain in a sample population of adult Nigerians, as seen in patients presenting in the General outpatient department of the University of Uyo Teaching Hospital, Uyo, South-South Nigeria.

MATERIALS AND METHODS

This was a cross-sectional, hospital-based study that was conducted at the General Outpatient department of the University of Uyo Teaching Hospital from May to July 2011. A total of 400 subjects aged 18 years and above were selected for the study using systematic random sampling technique. The first subject was at random while subsequent selection was based on a pre-determined sampling interval which was obtained by dividing the total population of patients expected during the 3-month study period by the calculated minimum sample size.

The study was approved by the Research and Ethical committee of the University of Uyo Teaching Hospital. Written informed consent was

obtained from the subjects after explaining the nature and objective of the study to them. All consenting adults aged 18 years and above were included in the study while non-consenting subjects, those less than 18 years and very ill patients were excluded. Each subject was administered a semi-structured questionnaire which sought information on socio-demographic characteristic and the presence or absence of low back pain.

Data entry and analysis was done using Epi Info statistical software version 3.2.2 (CDC Atlanta, Georgia, USA).¹⁵ The means, frequencies and statistical association of variables were ascertained.

RESULTS

Four hundred subjects were recruited for the study. The socio-demographic characteristics of the study subjects is shown in Table 1. There were 176(44%) male and 224(56%) female subjects in the study population with male to female ratio of 1:1.3. The mean \pm standard deviation of the subjects age was 38 ± 14.2 years.

The prevalence of low back pain in the study subjects is shown in Table 2. The point prevalence of low back pain was 31.0%. The prevalence was high among men compared to women (34.7% versus 28.1%) but was not statistically significant ($X^2 = 1.97$, $P = 0.16$).

Table 1: Socio-demographic characteristics of the study subjects

Variables	Characteristics	Male n=176	%	Female n=224	%	Total N=400
Age group(years)	<20	11	6.3	20	8.9	31
	20-29	42	23.9	70	31.3	112
	30-39	46	26.1	25	11.2	71
	40-49	35	19.9	41	18.3	76
	50-59	27	15.3	46	20.5	73
	>60	15	8.5	22	9.8	37
Marital status	Single	63	35.8	84	37.5	147
	Married	104	59.1	101	45.1	205
	Separated	3	1.7	4	1.8	7
	Divorced	0	0.0	6	2.7	6
	Widowed	6	3.4	29	12.9	35
Level of education	No formal ed.	11	6.3	17	7.6	28
	Primary	45	25.6	50	22.3	95
	Secondary	73	41.5	90	40.2	163
	Tertiary	47	26.6	67	29.9	114
Occupational status	Unemployed	44	25.0	80	35.7	124
	Unskilled	91	51.7	95	42.4	186
	Semi-skilled	20	11.4	28	12.5	48
	Skilled	21	11.9	21	9.4	42
Place of residence	Urban	94	53.4	120	53.6	214
	Rural	82	46.6	104	46.4	186

Pet owners should be informed, however, of the existence of these problems. Information could be distributed at the time of licensing or when pets are brought to veterinarians for vaccinations. Owners should be encouraged to have their pets undergo faecal examinations at least once a year. Finally, the public should be made to be aware that a great deal of effort is needed to prevent dogs from spreading debilitating diseases.

REFERENCES

- Birchard, S., Sherding, R. *Saunders Manual of Small Animal Practice*. 3rd Edn., An imprint of Elsevier Inc. St. Louis, Missouri, USA, 2006.
- Swai, ES., Kaanya, EJ., Mshanga, DA and Mbise, EN. A survey on gastrointestinal parasites of non-descript dogs in and around Arusha Municipality, Tanzania. *Int J. Vet Advan.* 2010; 3: 63-7.
- Arambulo, PV and Steele, JH. Urban dogs in Houston, Texas – Parasite infection and environmental health impact. *Int. J. Zoon.* 1976; 3: 114-44.
- Hendrix, CM. *Diagnostic Veterinary Technicians*. 3rd Edn, Mosby, Inc., USA. 2006.
- Foryet, JW. *Veterinary Parasitology: Reference Manual*. 5th Edn., Blackwell. Inc. USA. 2001.
- Dakkak, A. Guidelines for diagnosis, surveillance and control of echinococcosis. *Veterinary Public Health, World Health Organisation, Geneva, Switzerland; Echinococcosis-hydatidiosis in North Africa: geographical distribution of species and strains and prevalence in man and animals*. 1992
- Heukelbach, J., Wilcke, T., Meier, A., Moura, RCS and Feldmeier. A longitudinal study of cutaneous larva migrans in an impoverished Brazilian township. *Travel Med Infect Dis.* 2003 ;1: 213-18.
- Akao, N and Ohta, N. Toxocariasis in Japan. *Parasitol Int.*(200; 56: 87-93
- Daryani, AM., Sherif, S and Gholami. Prevalence of Toxocara in stray dogs. *Northern Iran Pak. J. Biol. Sci.*, 2009;12: 1031-35.
- Itoh, N., Kanai, K., Hori, Y., Hoshi, F and Higuchi, S. Prevalence of *Giardia intestinalis* and other zoonotic parasites in private household dogs of the Hachinohe are in Aomori prefecture, Japan in 1997, 2002 and 2007. *J Vet Sci.* 2009; 10: 305-8.
- Katagiri, S., Oliveira-Sequeira, TC. Prevalence of dog intestinal parasites and risk perception of zoonotic infection by dog owners in Sao Paulo State, Brazil. *Zoonoses Public Health.* 2008; 55: 406-13.
- Palmer, CS., Thompson, RCA., Traub, RJ., Bees, R and Robertson, ID. (2008). National study of the gastrointestinal parasites of dogs and Cats in Australia. *Vet Parasitol.* 151: 181-90.
- Batchelor, DJ., Tzannes, S., Graham, PA., Wastling, JM., Pinchbeck, GL and German, AJ. Detection of endoparasites with zoonotic potential in dogs with gastrointestinal disease in the UK. *Transbound Emerg Dis.* 2008; 55: 99- 104.
- Salb A., Barkema, HW., Elkin, BT., Thomson, RCA., Whiteside, DP., Black, SR., Dubey, JP., Kutz, SJ. Dogs as sources and sentinels of parasites in human and wild life, northern Canada. *Emerg Infect Dis.* 2
- Prociv, P and Croese, J. Human enteric infection with *Ancylostoma cranium*: Hookworms reappraised in light of a “new” zoonosis. *Acta Tropica.* 1996; 62: 23-44.
- Kraiss, H., Weber, A., Appel, M *et al.*, *Zoonoses: Infectious Diseases Transmissible from Animals to Humans*. 3rd ed. Washington, DC: *Am Soc Microbiol Pr.* 2003; 369-71.
- Parija, SC., Bhattacharya, S., Padhan, P. and Shivaprakash, MR. Evaluation of formalin-acetone sedimentation in the concentration of stool for intestinal parasites. *Tropical Doctor* 2003; 33: 163–64.
- Anosike, JC.; Ogbulie, JN; Unamba, C; Okoro, UO. Nwoke, BEB.; Oku, EE. and Okoli, CG. Intestinal Helminths of Dogs in the Ebonyi Benue River Valley, South Eastern Nigeria. *J. Innov. Life Sc.* 2000; 6, 105-8.
- Knoble, DL., Laurenson, MK., Kazwala,

- RR., Roden, LA and Cleaveland, S. Cross sectional study of factors associated with dog ownership in Tanzania. *BMC. Vet Res* 2008; 4: 5
20. Roberstson, ID., Irwin, PJ., Lymbery, AJ., Thompson, RCA. The role of companion animals in the emergence of parasitic disease. *Int J. Parasitol.* 2000; 30, 369-377.
 21. WHO. *World Survey of Rabies* No. 31. WHO, Geneva. 1995
 22. Udonsi, JK. *Host-parasite, arms race, the Nigerian Theatre*. Inaugural Lecture Series No.31.3rd October. Uniport Press. 2002; 99p.
 23. Thrusfield, M. *Veterinary Epidemiology*. 2nd Edn. Blackwell Science Ltd. Cambridge. USA. 2005.
 24. Ugbomoiko, US., Ariza, L., Heukelbach, J. Parasites of importance for human health in Nigerian dogs: high prevalence and limited knowledge of pet owners. *BMC Vet Res* 2008; 4: 49.
 25. Anosike, JC., Nwoke, BE., Ukaga, CN., Madu, NG and Dozie, IN. Aspect of intestinal helminth parasites of dogs in World Bank assisted housing estate, New Owerri, Nigeria. *Afr J Appl Zool* 2008; 4: 26-30.
 26. Sato Y, Kobayashi J, Shiroma Y. Serodiagnosis of strongyloidiasis. The application and significance. *Rev Inst Med Trop Sao Paulo* 1995; 37: 35-41.
 27. Siddiqui AA, Berk SL. Diagnosis of *Strongyloides stercoralis* infection. *Clin Infect Dis* 2001; 33: 1040-47.
 28. Steinmann P, Zhou XN, Du ZW, Jiang JY, Wang LB, et al. Occurrence of *Strongyloides stercoralis* in Yunnan Province, China, and comparison of diagnostic methods. *PLoS Negl Trop Dis* 2007; 1: e75.
 29. Agarwal V, Agarwal T, Ghoshal UC. Intestinal strongyloidiasis: a diagnosis frequently missed in the tropics. *Trans R Soc Trop Med Hyg* 2009; 103: 242-6.
 30. Yakob, HT., Ayele, R and Basu, AK. Gastrointestinal Nematodes in dogs from Debre Zeit: Ethiopia. *Vet. Parasitol.* 2007; 148: 144-8.
 31. Umar, YA. Intestinal helminthoses in Dogs in Kaduna Metropolis: Nigeria. *Iran J Parasitol.* 2009; 4: 34-9.

Prevalence of Low Back Pain Among Adults Attending A Tertiary Hospital in South-South, Nigeria

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ABSTRACT

Low back pain is the most prevalent musculoskeletal disorder and a common cause of disability. It is a considerable health problem affecting people in the developing and developed countries. The aim of this study was to determine the prevalence of low back pain among adult patients seeking medical care at the General outpatient department of the University of Uyo Teaching Hospital, Uyo, South-South Nigeria. This was a cross-sectional study of 400 subjects aged 18 years and above selected by systematic random sampling technique, from the month of May 2011 to July 2011. A semi-structured questionnaire was used to obtain information on socio-demographic characteristics and the presence or absence of low back pain in the subjects. Data obtained was analyzed using Epi info statistical software version 3.2.2. One hundred and seventy-six (44%) male and Two hundred and twenty-four (56%) female subjects participated in the study (male : female; 1:1.3). The point prevalence of low back pain in the subjects was 31.0%. The prevalence was higher among the male (34.7%) than the female (28.1%) subjects ($\chi^2 = 1.97$, $P = 0.16$). The prevalence of low back pain in this study is high and comparable to that obtained in other studies within and outside Nigeria. Health education on the prevention of low back pain should be encouraged.

Keywords: Prevalence, low back pain, adult, prevention, Uyo.

INTRODUCTION

Low back pain is defined as episodes of pain or discomfort occurring in the region between the 12th rib and gluteal folds, that interrupts daily activities and/or requires treatment or consultation.^{1,2} More than 80% of the population will experience an episode of low back pain at some time during their lives.³ The clinical course of low back pain is benign for most, with 95% of those afflicted recovering within a few months of onset. Some, however, will not recover and will develop chronic low back pain.³

The prevalence of low back pain has been estimated in various population by numerous authors. However, methodological differences in the studies make it difficult to draw accurate conclusions.⁴ Review of literature describing low back pain prevalence in the developed world have produced variable estimates of prevalence rates.⁵ Studies by Looney and Stratford on the prevalence of low back pain estimated the prevalence to be 6.8% in North-America, 12% in

Sweden, 13.7% in Denmark, 14% in the United Kingdom, 28.4% in Canada and 33% in Belgium.⁴

There appears to be a general assumption by previous studies that low back pain prevalence in Africa is lower than that reported in the developed nations. However, Quinette et al⁶ in 2007 carried out a systematic review of relevant African studies on low back pain. The review indicated that there was little difference in the prevalence of low back pain among Africans compared with the prevalence of low back pain in developed countries. The mean low back pain prevalence among African adults was 32% (range from 10% to 59%).⁶ Studies by Mijiyawa et al⁷ in Togo and Moses et al⁸ in Uganda among hospital outpatients reported low back pain prevalence of 33% and 20% respectively. In Nigeria, Ogunbode and his colleagues in Ibadan reported low back pain point prevalence of 46.8% among adult general outpatient attendees.⁹ Omokhodion in two separate surveys in the South-West reported low back point prevalence of 28% and 39% in rural and urban population respectively.^{10,11} Sanya et al¹² reported a point prevalence of 20.6% in a cross-sectional survey among hospital workers in Ibadan. Other studies^{13,14} on the prevalence of low back pain carried out on specific occupational groups have reported much higher prevalence rates.

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