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Instruction To Authors

Prevalence of Single and Multiple Parasitic Infection Among School and Pre-School Children in Karachi in Pakistan by Gender and Age Group

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ABSTRACT

A total of 770 students have been observed from 5 different schools of Karachi in Pakistan during January 2013 to December. Their stool samples were collected and observed under research microscope (40 xs) and found *Ascaris lumbricoides* (round worm) and *Ancylostoma duodenale* (hook worm). The prevalence of single parasitic infection was found 83.9% of which 39.5% in boys and 44.4% in girls. Multiple parasitic infection was observed 42.1%, with 23.7% in boys and 18.4% in girls.

Keywords: Ascariasis, Ancylostomiasis, Prevalence, Health, Stool

INTRODUCTION

The most important infection in Asia which is contributing the biggest share of clinical disease burden is write out (STH) infection. There is indication to recommend that the occurrence of ascariasis, predominantly of *Ascaris lumbricoides*, is increasing due to water resources development projects, population increase or displacement, human migration and competing priorities in the health sector. The adult *Ancylostoma duodenale* (hook worm) dwells in the human intestine and infection is acquired when third stage larvae present in soil penetrates through the skin while *Ascaris lumbricoides* (round worm) infection enters through the oral route by taking contaminated food or water.

STH infections are caused by *Ascaris lumbricoides* (round worm) and *Ancylostoma duodenale* (hook worm); it is the third leading parasitic cause of death after malaria and schistosomiasis. (Sebastian, 2007). It is also a big problem and serious health threat in tropical and subtropical developing areas (Ohnishi *et al* 2004).

Siddiqui *et al.* (2002) observed the prevalence of

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parasites infection in a rural area of Karachi Pakistan. Waqar *et al.* (2003) studied the intestinal parasites in children from northern Pakistan. Chaudhry *et al.* (2004) observed the epidemiological factors affecting prevalence of intestinal parasites in children of Muzaffarabad Pakistan.

Rana and Shivanda (2005) worked on prevalence and distribution of intestinal parasites among school children in Kaski district, Western Nepal. Shaukat *et al.* (2006) studied a record of intestinal parasitic infection from Ehsanullah diagnostic laboratory, Nazimabad Karachi. Wani *et al* 2007 studied the intestinal helminthiasis in a population of children from the Kashmir valley India.

Seghal *et al.* (2010) observed the prevalence of intestinal parasitic infections among school children and pregnant women in socio-economic area, Chandigarh, North India. Khan *et al* 2011 investigated intestinal parasite under above 15 years age in farmers of Swat. Talat *et al.* (2012) studied the prevalence of helminth infection in different areas of Karachi.

Intestinal infections are more common in developing countries of the world, and cause high mortality rate. Pakistan is one of the developing countries where

the incidence of intestinal parasitic infection is more common in the province of Sindh at Karachi city. Large numbers of people are suffering with polyparasitism.

MATERIAL AND METHODS

The present investigation was carried out on stool samples which were received from the different schools of Karachi during January 2013 to December.

The selected area was Karachi city which is largest city of Pakistan, located in southern part of Pakistan within the Sindh province. The investigation was carried in 5 schools of Karachi including PMA School, PAF School, Sheema Public School, Maripur Government School and Bahria Foundation School. Children's age between 3-11 years. For the present research work slides were prepared by fresh samples of stool which were collected in the disposable glass bottles using hygienic precaution and were examined in laboratory under the research microscope (40 xs). For the preservation of stool samples a solution was used containing 10% formalin, 20% glycerine, and 70% distilled water. School samples were examined for Round and Hook worm using the Kato Katz technique (WHO,1994). The microscopic examination of samples was made within one hour of collection.

RESULTS AND DISCUSSION

The present investigation was based on the prevalence of human intestinal parasites among the students of different schools of Karachi city. For this purpose total 770 stool samples of male and female students of age 3- 11 years collected from 5 different schools including PMA School, PAF School, Sheema Public School, Maripur Government School and Bsharia Foundation School during January 2013 to December 2013. In this study only two species of parasites were found and identified namely *Ascaris lumbricoides* and *Ancylostoma duodenale*. Single parasitic infection was in high intensity rate i.e. 83.9 % in all samples, from which boys have 39.5 % and

girls have 44.4 %. Multiple parasitic infection was 42.1 % , with 23.7 % in boys and in girls it was 18.4 % (Figure 1). The result shows that parasitic infection occurred more frequently in boys than girls because boys are in touch with the environment and badly affected with the germs.

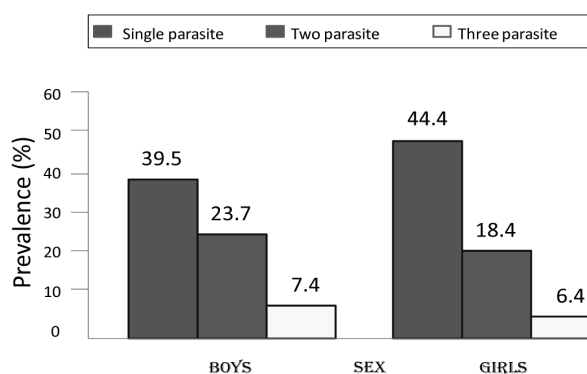


Figure 1: Prevalence of single and multiple parasitic (*Ascaris lumbricoides* and *Ancylostoma duodenale*) infection by sex in 770 students in 5 schools (Dates) ?

The prevalence of intestinal infection is most common in Sheema Public School and Maripur Government School, however low frequency was observed in Pakistan Bahria foundation school multiple parasites were common in both male and female children and it occurred more frequently in older children as compared to younger because the infection becomes more harmful as the age increases as well as not treated properly and because of the lack of treatment. (Figure 2)

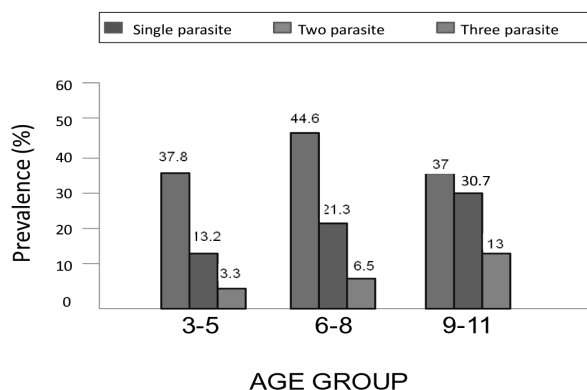


Figure 2 : Prevalence of single and multiple parasitic infection by age group

The significance of round worm & hook worm as major public health problems in school and pre

school children in the study area is not only as single infections but also as concurrent infections. High prevalence rates and intensity of *Ascaris* and *Ancylostoma* infections were found in the studied population.

Although variations existed among schools, age groups and sexes with regard to prevalence and intensity as well as associated morbidity, all schools, irrespective of sexes and age groups were affected. Multiple parasite infections involved two or more parasites and majority of them involved in Ascariasis and Ancylostomiasis.

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