

Occurrence of Gastrointestinal Parasites Among Pre-School Children, Gaza, Palestine

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Abstract: **Aims:** The present study is aimed to assess the occurrence of gastrointestinal parasites among pre-school children in Gaza.

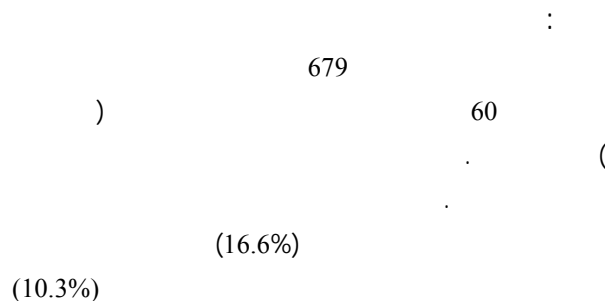
Methods: In this study 679 stool specimens were collected from pre-school children aged <10 months to 60 months attending Ard El-Insan Association (Community primary health care center) in Gaza city. Stool specimens were inspected by a direct smear microscopy and sedimentation techniques.

Results: The present study found that 16.6% of the studied children were infected with intestinal parasites. Infection with *Giardia lamblia* showed the highest prevalence (10.3%) among other parasites detected. Intestinal parasite prevalence was higher among male children than females. All age groups were susceptible for parasitic infection and no clear trend due to age.

Conclusions: Intestinal parasites were found also among pre-school children in Gaza and those groups of children need more medical attention to avoid their intestinal parasites consequences.

Key words :

Pre-school children, gastrointestinal parasites, Prevalence, Gaza.



Introduction

Intestinal parasites infect many of the world's children, constitute an important public health problem and are common wherever environment and poor sanitation permit their spread [1]. Of helminths, ascariasis has been

associated with poor growth of pre-school children [2]. The situation of intestinal parasitic infection in Gaza Strip, is still a problem, probably due to defect in health status, poor sanitation, population crowding, bad hygienic habits, and poor health education [3]. Several studies carried out in Gaza Strip on the prevalence of parasitic diseases among school children revealed a low, moderate and high prevalences of intestinal parasitic infections among the following populations; Pre-school children from Al-Shatei refugee camp children aged 6-12 years (48%); children from Gaza (27.6%); children aged 6-12 years old from Deir El-Balah (36.3%); children from Beit-lahia (72.9%) and children aged 6-12 years old from three localities in Gaza Strip (28.9%) [4-8]. These studies indicated that the common parasites among school children were *Ascaris lumbricoides*, *Entamoeba histolytica*, *Giardia lamblia*, *Hymenolepis nana*, and *Enterobius vermicularis*. More than 50% of pre-school children in the Gaza Strip refugee camps are infected with intestinal parasites due to poor socioeconomic and environmental sanitation conditions in addition to lack of personal hygienic practices [9]. The aim of the present work was to study the occurrence and prevalence of gastrointestinal parasites among pre-school children in Gaza Strip.

Subjects and Methods :

This work is an epidemiological study on the occurrence of gastrointestinal parasites among pre-school children in Gaza Strip based on a cross-sectional design.

The study population:

During the period between 1999-2000, 679 Palestinian pre-school children aging between 1 to 60 months (under five years) attending Ard El Insan association (Community Primary Health Care Centre) in Gaza city have been participated in the study. Normally those children attending the association in regular times seeking for supplement food due to malnutrition.

Obtaining data:

One stool specimen was collected from each child when attending the association by helping the mother. The age, sex and education of parents were recorded where these parameters were included in the data analysis.

Parasitological methods:

Stool specimens were normally inspected by two techniques, a direct smear microscopy (wet mount) using saline and lugole's iodine and sedimentation technique using formal-ether according to the standard methods by [10].

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Treatment of infected children

A proper drug was provided to each infected child under the supervision of physician from department of school health, where the drug was donated by the Ministry of Health.

Ethical considerations

Permission was obtained from the Medical director of Ard El Insan association. All children families were informed verbally about the purpose of the study.

Statistical analysis

The collected data were entered to the computer system and analyzed using Statistical Package for Social Sciences Inc., Chicago, Illinois (SPSS/PC). Frequency, cross-tabulation and Chi-square were carried out, p-value less than 0.05 is considered statistically significant.

Results

This study included 679 pre-school children attending Ard El -Insan Association in Gaza city. This study included 336 (49.5%) males and 343 (50.5%) females. It was found that 113 (16.6%) pre-school children were infected with different types of intestinal parasites. The study showed that the number of infected males 67 (59.3%) was higher than infected females 46 (40.7%) and this difference was statistically significant (P=0.02). Table 1. revealed that three protozoal parasites were detected; *Giardia lamblia* 70 (10.3 %), *Entamoeba histolytica/dispar* 15 (2.2%) and *Entamoeba coli* 6 (0.9%). The other two are intestinal nematodes, *Ascaris lumbricoides* with prevalence of 20 (2.9%) and *Hymenolepis nana* with prevalence of 2 (0.3%).

Table 1. Prevalence of gastro-intestinal infections with protozoa and helminthes, among 679 pre-school school children:

Parasite	No. of infected children	Prevalence %
Single infection with protozoa and helminthes		
<i>Giardia lamblia</i>	70	10.3
<i>Entamoeba histolytica/dispar</i>	15	2.2
<i>Ascaris lumbricoides</i>	20	2.9
<i>Hymenolepis nana</i>	2	0.3
<i>Entamoeba coli</i> (no-pathogenic)	6	0.9

Table 2 showed the distribution of the infection due to the age groups. Two age groups seem to be similar regards the prevalence of parasitic infection 21-30 months and 41-50 months (19.1%) and (19.5%). However no clear trend was observed due to age.

Table 2. Distribution of Infected and Not-infected pre-school children according age groups by months (n=679)

Age group by months	Number examined	Number infected (%)	Number Not-infected (%)	p-value
≤ 10 months	174	20 (11.5)	154 (88.5)	>0.05
11-20 months	24	4 (16.7)	20 (83.3)	
21-30 months	47	9 (19.1)	38 (80.9)	
31-40 months	80	10 (12.5)	70 (87.5)	
41-50 months	190	37 (19.5)	153 (80.5)	
51-60 months	164	33 (20.1)	131 (79.9)	

Discussion

Based on the authors knowledge there is lack of studies about parasitosis among pre-school children in Gaza. In our study we found that (16.6%) of the examined preschool children were suffering from parasitic infection. This result was only slightly lower than that found in previous study carried out among preschool children in Khanyounis with a prevalence of (21%) [11]. (un-published data). The present findings was different from that of Al-Wahaidi, [4] who reported overall prevalence of (48%) and (12%) among preschool children in both beach camp and Rimal area in Gaza strip. This difference may be attributed to many behavioral and hygienic factors among those children. In the same time several studies reported the same intestinal parasites with different prevalence's ranges from (24%) to (53%) in different Gaza strip localities [4,5,3,7]. Our findings regarding the parasitic infection with relation to sex revealed a that males were more susceptible to infection (59.3%) than females (40.7%) and this was statistically significant ($P = 0.02$).

This result is in agreement with Al-Hindi [6] who reported a significantly higher prevalence of infection among males (48%) as compared to (27.8%) female's schools children. The difference of prevalence between males and females could be attributed to the activity of males than females. As indicated in Table (2) no clear trend in the prevalence of parasitic infection was found regarding age. This may be explained on the bases that all of these age groups are susceptible to infection with the same range with slight differences.

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Our results showed that the two age group ≤ 10 months and 31-40 months had the lowest prevalence of infection (11.5%) and (12.5%) compared to the other age groups. This may refer to the fact that children of older age start to play outside home while the younger ones are quite and protected by their parents. *Entamoeba histolytica/dispar* was found to be more prevalent in 0-10 month (63.6%) than other age groups. This may be explained by milk bottles contamination or un-breast feeders and creeping on a contaminated grounds. Giardial infection seems to be high in all age groups especially in 51-60 month old children (90%). We found in our study a comparable result: the prevalence of giardiasis among preschool children was lower six times with that reported previously by Yassin et al., [5] among primary school children and this is in agreement with [12]. It seems to be an influence of age on the presence of each type of parasites detected ($P=0.001$). Age related prevalence variation has been reported by other investigators [6,13] whom showed that more prevalence of intestinal parasites is evident in <5 years old children. It was concluded that intestinal parasites do exist among pre-school children in Gaza and those group of children need more medical attention to avoid them of the intestinal parasites consequences. It is recommended to improve the health status among those children in Gaza to enable them to have healthy body and normal growth.

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