

# Intestinal Parasites Infections In Refugees Camps In The Gaza Governorates, Palestine

R Al-Shawa

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## Abstract

From January 2004 to December 2004, a total of 58206 stool specimens have been examined in parasitological laboratories of eight refugee camps in Gaza Governorates at UNRWA health centers. Fecal examination revealed an overall prevalence of 19.07% ( 10472/58206 ). The high prevalence was noticed in Rafah refugee camps 20% and a lower prevalence in Gaza city 15% where 273.262 refugees are living in it.

A total of eight parasite were recorded with high prevalence of Entamoeba histolytica , Giardia Lamblia and Ascaris lumbricoides .

## INTRODUCTION

Intestinal parasites are very common in tropical and subtropical regions. Helminthes such Ascaris, Trichuris and Hook worms are approximately infect 3.5 billion individual worlds wide (1). The intestinal parasites are distributed in host community so that a minority of the individual is heavily infected. Where as the majority harbors few or no worms (2). This aggregated distribution is probably due to a complex combination of factors related to exposure infection, e.g.: environmental and host behavior and Factors related the host's ability to resist infection such as genetic constitution and immune responsiveness (3). Intestinal parasites are widely prevalent in developing countries due to poor sanitation, inadequate personal hygiene. The commonest parasitic infections reported globally are Ascaris (20%), trichuris trichiura (10%) and Entamoeba histolytica (10%) (4).

Most data on prevalence of intestinal parasite in Gaza Governorates obtained from school and pre-school children in Gaza (5,6,7).

Intestinal parasites are considered one of the highly mortality factors causing malnutrition and anemia among children in Gaza (8, 9)

The low standard of living prevailing in Gaza is mainly due to lack of sanitary services and spread of unemployment (10). Refugees living in camps are not a social class and there is

differentiation within and among camps

The large family size in refugee camps is one of the causes of overcrowding .

Refugee outside camps and non-refugee are generally located in lower and upper middle strata while more camp refugee are found in lower middle and lower categories (11)

The aim of this study is to determine the prevalence of intestinal parasites among refugee Palestinian people who live in Gaza Governorate.

## MATERIALS AND METHODS

### STUDY AREA AND POPULATION

As shown in Figure (1) Gaza Governorates is a small piece of land, it's surface area about 365 km it extends longitudinally 45 kilometers along the Mediterranean sea coast and 6-10 kilometers wide with an estimated population of about 1,407,041. More than 70% of Gaza Governorate population is refugee and 44.44% of the refugee population reside in eight densely crowded refugee camps.

Figure 1

Figure 1: Gaza Governorates Camps



Gaza Governorate is divided into Five provinces, the north, Gaza, midzone, khanyonis and Rafah.

At north lies: Jabalia and Beach camp which are most densely population of the Gaza eight refugee camps.

In mid zone there are Bureij and Deir- El-Balah camps.

Deir-El-Balah is the smallest refugee camps and located on the Mediterranean coast.

Rafah refugee camp is located on the Egyptian border. It was one of the largest and most densely populated of the eight refugee camps (12). 273.262 refugee are living in Gaza City.

**STOOL EXAMINATIONS**

Data were collected from UNRWA health centers in out patients in Gaza Governorate from January 2004 to December 2004, and were reviewed and analyzed.

**DIAGNOSTIC CRITERIA**

The fecal specimens were normally examined within one hour after collection. Stool samples were examined by direct smear method with physiological saline mount according to established procedure (13). The age, sex and other, demographic information of the patients were not recorded in consistent manner and these parameters were not included in the data analysis.

**RESULTS**

In this report, the UNRWA clinics records of 58206 stool specimens, were analysed in eight refugee camps in five provinces in Gaza governorate 10,472 were positive cases, In Table (1), the overall prevalence was 17.99%, eight parasites were identified 3 protozoan (E, histolytica, Giardia and E.coli) and 5 helminths (Ascaris, Trichuris, strongyloides, ) Enterobius vermicularis and Hymenolepis nana were identified (Table 1).

High prevalence of intestinal parasites is 20% in Rafah camp, the same result approximately was at mid zone 19.97% followed by Khan younis 18.96% and at north 17.14% and a low prevalence in Gaza 15.05%.

Figure 2

Table 1: Prevalence of Intestinal Parasites in five regions in Gaza Governorates

Parasite	North	%	Gaza	%	midzone	%	KhanYounis	%	Rafah	%
E.coli	36	0.28%	1	0.01%	65	0.47%	15	0.18%	0	0.00%
Giardia	1122	8.09%	727	5.27%	1248	9.03%	827	7.43%	635	7.67%
E.h	1050	7.87%	667	7.01%	1224	8.85%	860	7.82%	863	10.67%
Sider	28	0.21%	5	0.04%	31	0.22%	5	0.04%	2	0.02%
E.vero	22	0.18%	18	0.12%	4	0.03%	5	0.04%	11	0.13%
TR	23	0.17%	3	0.02%	0	0.00%	8	0.07%	0	0.00%
H.nana	58	0.43%	19	0.14%	60	0.43%	36	0.32%	31	0.37%
Ascaris	304	2.19%	338	2.45%	130	0.94%	244	2.19%	93	1.12%
ive	2645	19.07%	2079	15.05%	2782	19.98%	1850	16.66%	1695	20.00%
Total examined	13866		13804		13824		8427		8275	

High prevalence of Giardia 9.03% at mid zone and low prevalence at Gaza 5.27% also high prevalence of Entamoeba histolytica 10.67% was in Rafah and low prevalence at Gaza 7.5% while Ascaris was low in prevalence between (0.94% to 2.89%) in five provinces in comparisons to prevalence of Entamoeba histolytica of Giardia lamblia.

**DISCUSSION**

While there are several reports on prevalence of intestinal parasitic infections in Gaza Governorates most of these reports were carried out among school children.

There are no published reports on refugee Palestinian people in five provinces in Gaza Governorates.

Analysis of these results showed that low prevalence of intestinal parasites of 15% at refugees living in Gaza city in comparison to refugee living in camps where prevalence was at (Rafah 20% , Mid zone 19.9 % north 19% , khan younis 19.9 % and Gaza 15.05%) , and this explained that Gaza refugee camps still suffer from tremendous overcrowding whose legal boundaries have not changed since their establishment. The populations increase in these camps, the majority of the families still live in small one or two rooms which are often shared by nine or ten people, kitchens and

sanitary facilities are small and insufficient increasing the risk of diseases.

Analysis of these results showed that *G.lamblia* , *E.histolytica* , *A.lumbricoides* were the commonest intestinal parasites in all five regions in Gaza Governorates and this are similar to studies by other investigators in Gaza ( 5,14,15)

*E.histolytica* and *G.lamblia* are water born diseases. Ingestion of mature cyst from contaminated food or water cyst initiates the infection.

Water born diseases are diseases spread through contaminated water (16). Contamination of water in Gaza may be indirect from waste water reuse in agriculture or seepage from networks or open system. This was supported in studies by Melad K (17) and Al-farra (18) about ground water and health. They emphasized that poor treatment of waste water is the main cause of protozoa prevalence .

There is a correlation between prevalence of intestinal parasites and sewage system in Gaza Camps and this was explained by a study of

Al-Whidi (15) and Smith(19) explained that, in the camps, houses had latrines some connected to pits and some pits linked to underground piped sewage system, while others over flowed in the street, which provided a regular source of pollution and a damp environment for helminthes ova to survive which contaminated food, water and people's hand. During heavy winter local flooding washed faecal content from latrine pits to street surface spreading fecal materials through up the camp.

## CONCLUSIONS

There is a high prevalence of parasitic infections in camps in Gaza Governorate, which contributed to child mortality and morbidity by precipitating diarrhea disease and malnutrition. Urgent consideration should be applied for improvement of sanitation and prevention.

## CORRESPONDENCE TO

Dr. Rodina M. Al-Shawa, Department of Biology, Collage of Science, Al-Azhar University, P.O Box 1439, Gaza Governorates, E-mail: rod\_shawa@yahoo.com

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**Author Information**

**Rodina M. Al-Shawa**

Department of Biology, College of Science, Al-Azhar University