# AIM OF THE WORK

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## Goal of the study

The ultimate goal of the research is to improve the health of children aged 6-12 years in Alexandria, Egypt.

## General objective

Is to estimate the prevalence and reveal the effect and predisposing factors of parasitic infestations among children aged 6-12 years in Sidi-krir, El- Agamy district in Alexandria.

## Specific objectives

1) To estimate the prevalence rate of parasitic infestations in children aged 6-12 years attending Sidi krir family health unit.
2) To determine the most common intestinal parasitic infestations in children aged 6-12 years attending Sidi krir family health unit.
3) To reveal the effect of parasitic infestations on child health.
4) To identify the predisposing factors of parasitic infestations in children aged 6-12 years attending Sidi krir family health unit.

# SUBJECTS AND METHODS

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## I. Research strategy

The descriptive epidemiological approach was used where the cross-sectional survey was selected and carried out.

## II. Research setting

The study was conducted in Sidi-krir family health unit in El-Agamy health district, Alexandria. The unit is composed of: small laboratory for carrying out the routine investigations as stool examination and hemoglobin level, a pharmacy, an emergency unit and one family health clinic. The medical working staff include 5 family physicians, 5 dentists, 8 nurses, sanitarian and 2 laboratory technicians.

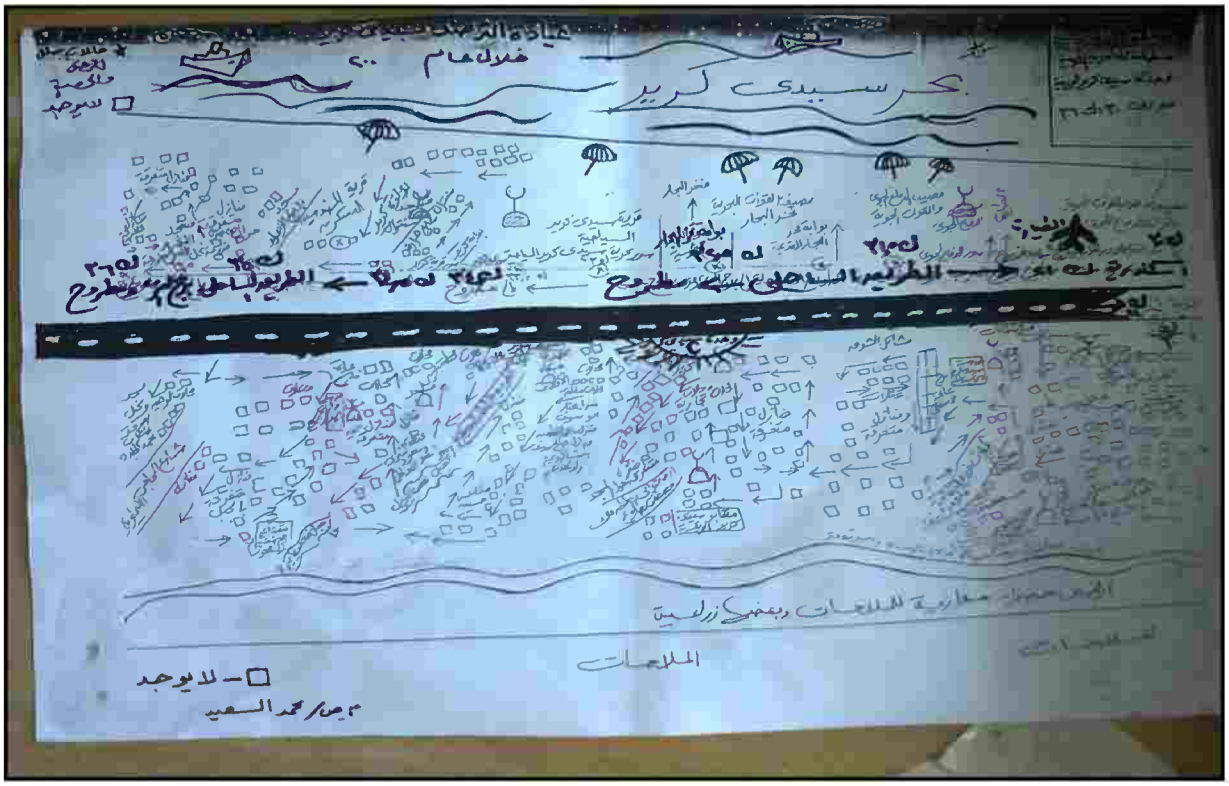

**Fig. (6):** Location of Sidi-krir family health unit and area served by the unit.

## III. Target population and sample technique

All children aged 6-12 years and their key informants attending Sidi- krir family health unit -due to any cause- during the 3 months period of the field work (started from February till the end of April 2014) were enrolled in the study, where the period of the study was 3 days per week for 3 months.

### Exclusion criteria

1) Those children at 6-12 years of age who refuse, or their key informants refuse, to participate.
2) Those children at 6-12 years of age who attend Sidi-krir family health unit in emergencies or acute health problems which make carrying out the stool analysis impossible.

# IV. Data collection methods

## a) Data collection tools

The data was collected using the following tools which were designed by the investigator himself:

1) Interview questionnaire to collect data from parents regarding the sociodemographic characteristics of studied children, clinical symptoms and predisposing factors of parasitic infestations including environmental, sanitary, socioeconomic and behavioral risk factors (appendix 1).
2) Clinical examination sheet to assess child weight, height and body mass index (BMI) as well as the presence of pallor (appendix 2).
3) Transfer sheet to collect the results of stool analysis and hemoglobin (Hb) level (appendix 3).

## b) Collective agreement

An approval for the implementation of the study, was obtained from the community medicine department, deputy of ministry of health and the manager of Sidi-krir family health unit for conduction of the research.

## c) Pilot study

Pilot study was conducted before starting data collection for the following purposes:

1. Test the questionnaire and ensure that all questions were clearly understood.
2. Estimate the average time needed to collect data.
3. Explore the possible obstacles while conducting the research.

The following was clarified by the pilot study:

1. Questions were clearly introduced by the researcher.
2. Average time for collection of data from each case was 10-15 minutes.

## d) Data collection plan

Study field work was carried out 3 times weekly during the 3 months period of the research field work. The data collection continued during a period of three months from february to april 2014.

The researcher met the director of Sidi-krir family health unit and explained the research strategy and objectives.

The researcher was then introduced to the parents and explained the purpose of the study and encouraged them to participate. The researcher was usually accompanied by nurse during administration of questionnaire to key informants.

The time allotted for data collection by the researcher for each child varied between 10 and 15 minutes. So the researcher was able to interview about 5-6 cases daily.

All children 6-12 years attending the unit for the first time for any reason during the days of the field work were enrolled. The child and his key informants were interviewed to complete the interview questionnaire, then, the child was clinically examined to complete the clinical examination sheet. A blood sample was obtained from each child by lab. technicians to assess Hb level. Also a stool sample was obtained from each child to be analyzed for parasitic infestations. The investigations were carried out in the laboratory attached to the studied unit. The stool samples were examined with naked eye for color, consistency and the presence of any adult helminthes. Then they were examined microscopically by direct method for parasitic infestations.

After carrying out stool examination for each child enrolled in the study for the first time, another stool specimen was collected from each negative case 2 days apart from the first specimen. After analysis of these specimens, a third stool specimen was collected from each negative case 2 days apart from the second specimen.

The end result revealed that out of 220 children, 8 children of them were negative for intestinal parasites.

# V. Ethical consideration

1. All key informants of children enrolled in the study, were informed about the study and its aim.
2. The confidentiality of collected data was stressed.
3. The questionnaires were anonymous to ensure privacy.
4. Written consent was taken from the key informants and any key informant who refused to share in the study was excluded.

# VI. Data processing and analysis

After data collection, raw data was coded and coding instruction manual was prepared. Data were fed to the computer using Stratistical Package for Social Sciences (SPSS) version 18.

## a. Data processing

Series of comprehensive checks was made to ensure correct data collection, and ensure that all questions had valid codes.

## b. Data analysis

Descriptive statistics used to describe the different characteristics of the children (frequency distribution, mean and S.D) included in the study.

Univariate analysis including Mann Whitney and student-t test to test the significance of results of quantitative variables. Moreover, Fisher's axact and Monte Carlo were used for significance among qualitative variables.

All results were interpreted at 5% level of significance.

# VII. Administrative design

All procedures covering the present study were carried out by the investigator himself under the guidance of supervisors.

# VIII. Dissemination results

A copy of the final report will be submitted to ministry of health.

# IX. Benefits of the study

The research corrects the incorrect practices encountered during the field work.

# X. Time table:

## 1) Literature review:

The past and the current literature related to the prevalence, effect and predisposing factors of intestinal parasitic infestations in children aged 6-12 years were reviewed to guide in the preparation of the study tools during the period from January to May 2013.

## 2) Preparatory phase:

### a) Getting approval:

Collaborative agreement were obtained from June to August 2013.

### b) Exploratory visits:

The visits were carried out from September to November 2013.

### c) Pilot study:

The pilot study was carried out in December 2013.

## 3) Data collection phase:

Started on February and lasted till April 2014.

## 4) Analysis and reporting phase:

It includes:

- Tubulation and statistical analysis started in July and lasted till September 2014.
- Reporting and writing the thesis started in October and lasted till November 2014.
- Submission of the thesis for evaluation in December 2014.

| Activity | January - May | June – August | September - November | December 2013 - January 2014 | February - April | May – September | October - December | January |
|---|---|---|---|---|---|---|---|---|
| | 2013 | | | | 2014 | | | 2015 |
| Literature review | | | | | | | | |
| Collaborative agreements | | | | | | | | |
| Exploratory visits | | | | | | | | |
| Pilot study | | | | | | | | |
| Data collection | | | | | | | | |
| Data analysis | | | | | | | | |
| Final report writing & submission of thesis for evaluation | | | | | | | | |

# RESULTS

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Results of the present study are presented in the following parts:

Part I: Prevalence of intestinal parasitic infestations among studied children.

Part II: Types of detected intestinal parasites.

Part III: risk factors of intestinal parasitic infestation.

- Section I: association between intestinal parasitic infestations and some socio-demographic characteristics of studied children.
- Section II: association between intestinal parasitic infestations among studied children and some socio-economic characteristics of their parents.
- Section III: association between intestinal parasitic infestations and the housing condition of studied children.
- Section IV: association between intestinal parasitic infestations and the hygienic practices of the studied children and their families.

Part IV: Effects of intestinal parasitic infestations.

- Section I: association between intestinal parasitic infestations among studied children and the results of their clinical examination.
- Section II: Consequences of intestinal parasitic infestations.

## Part I: Prevalence of intestinal parasitic infestations among studied children

The study included a total number of 220 children. After carrying out stool examination for each child enrolled in the study for the first time, out of 220 cases there were 63 cases of them with negative stool examination for intestinal parasites. These children repeated the stool examination for the second time with at least two days apart from the first time. The result revealed that 17 cases of them were negative for intestinal parasites, while 46 cases were positive.

The negative cases repeated the stool examination for the third and last time with at least two days apart from the second time. The result revealed that 8 children of them were negative for intestinal parasites, while the remaining 9 children were positive.

Intestinal parasitic infestation – either single or multiple infestations- was proved in 212 children with a prevalence rate of 96.4%. The children infested with a single intestinal parasite were 170 children and the prevalence rate of single intestinal parasite infestation is estimated to be 77.3%. On the other hand, the total number of children who were infested by more than one intestinal parasite was 42 children with estimated prevalence rate of 19.1%.

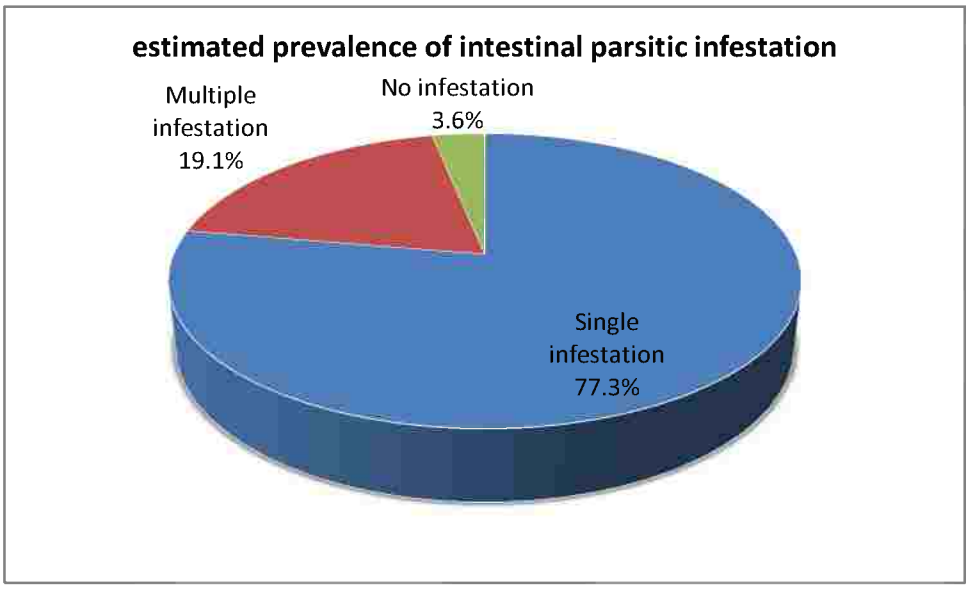


**Fig. (7):** Estimated prevalence of intestinal parasitic infestation.

## Part II: Types of detected intestinal parasites

Table (1) shows that about two thirds of children with intestinal parasites (64%) were infested with *Entrobious vermicularis* either single (47.1%) or with other intestinal parasites as *Amoeba* (12.7%) or *Giardia lamblia* (2.3%) or *Ascaris* (1.9%). On the other hand, about one third of children with intestinal parasites (34.3%) were infested with *Entamoeba histolytica* either single (18.8%) or with others (15.5%). Slightly more than one tenth of children with intestinal parasites (12.2%) were infested with *Ascaris* either single (7.5%) or with *Amoeba* (2.8%) or with *Entrobious* (1.9%). The lowest percent (9%) of children with intestinal parasites were infested with *Giardia lamblia* either single (6.7%) or with *Entrobious* (2.3%).

**Table (1): Distribution of isolated intestinal parasites according to their type.**

| Intestinal parasite | N | % |
|---|---|---|
| *Entrobius vermicularis* | 100 | 47.1 |
| *Amoeba* | 40 | 18.8 |
| *Ascaris* | 16 | 7.5 |
| *Giardia Lambelia* | 14 | 6.7 |
| *Ameoba & Entrobius* | 27 | 12.7 |
| *Ameoba & Ascaris* | 6 | 2.8 |
| *Giardia & Entrobius* | 5 | 2.3 |
| *Ascaris & Entrobius* | 4 | 1.9 |
| Total | 212 | 100 |

# Part III: Risk factors of intestinal parasitic infestations

## Section I: association between intestinal parasitic infestations and socio-demographic characteristics of studied children

Table (2) demonstrates that the majority of children enrolled in the study were infested by one or more intestinal parasites (97.3% of boys and 95.4% of girls) with no significant difference (p=0.49).

As regard the age, it was noted that the highest rate of intestinal parasitic infestation among the intestinally infested studied children was in age group 6<8 years, followed by age group 10-12 years and then 8<10 years (98.8%, 98.6% and 91.3% respectively), and these differences are statistically significant (p=0.03).

Also, table (2) shows that among children enrolled in the study, the majority of the children who attended school were infested with one or more intestinal parasites (95.6%), on the other hand, all the children who dropped out from school were infested, with no significant difference (p=0.36).

**Table (2): Distribution of studied children according to their socio-demographic characteristics and the intestinal parasitic infestations.**

| Socio-demographic characteristics | Intestinal infestation n=212 | | No intestinal infestation n=8 | | Test of significance |
|---|---|---|---|---|---|
| | N | % | N | % | |
| **Gender** | | | | | Fisher's Exact P=0.49 |
| Boys | 108 | 97.3 | 3 | 2.7 | |
| Girls | 104 | 95.4 | 5 | 4.6 | |
| **Age (years)** | | | | | Monte Carlo P=0.03* |
| 6<8 | 81 | 98.8 | 1 | 1.2 | |
| 8<10 | 63 | 91.3 | 6 | 8.7 | |
| 10-12 | 68 | 98.6 | 1 | 1.4 | |
| **Education** | | | | | Fisher's Exact P=0.36 |
| Continuing school | 170 | 95.5 | 8 | 4.5 | |
| Dropout from school | 42 | 100 | 0 | 0 | |

* Means statistically significant.

## Section II: association between intestinal parasitic infestations among studied children and the socio-economic characteristics of their parents

According to the educational level of parents of the studied children, table (3) reveals that all children belonging to illiterate fathers were infested with one or more intestinal parasites. also, all those belonging to fathers with basic education were infested, but only 71.4% of those belonging to fathers with higher education were infested with one or more intestinal parasites, and this difference is statistically significant (p=0.000).

As regard the educational level of mothers of studied children, table (3) shows that all the children belonging to illiterate mothers were infested with one or more intestinal parasites. moreover, the majority of those belonging to mothers with basic education were infested (93.75%), but only half of those belonging to mothers with higher education were infested with one or more intestinal parasites, and this difference is statistically significant (p=0.000).

Regarding the occupation of fathers of the studied children, table ( 3) demonstrates that all children belonging to skilled manual workers and farmers were infested with one or more intestinal parasites, but about two thirds of those belonging to employees were infested with one or more intestinal parasites (65.2%) and this difference is statistically significant (p=0.000).

According to the occupation of mothers of studied children, the majority of those belonging to house wives were infested with one or more intestinal parasites (98.5%), compared to 70.6% of those belonging to working mothers were infested with one or more intestinal parasites, and this difference is statistically significant (p=0.000).

As shown in table (3), the mean average income of families having infested children was 1379.41±721.5 LE, compared to 4250±1752.5Lefor families of non infested children, and this difference is statistically significant (p=0.002).

Also, table (3) reveals that the mean average income of family member in families having infested children was 224.9±155.1LE, compared to 1045.1±476LE in families of non infested children, and this difference is statistically significant (p=0.000).

**Table (3): Distribution of studied children according to the presence of intestinal parasitic infestations and the socio-economic characteristics of their parents.**

| Socio-demographic characteristics of parents | Intestinal infestation n=212 | | No intestinal infestation n=8 | | Test of significance |
|---|---|---|---|---|---|
| | N | % | N | % | |
| **Educational level (Father)** | | | | | Monte Carlo P=0.000* |
| Illiterate/read & write | 133 | 100 | 0 | 0 | |
| Basic education | 59 | 100 | 0 | 0 | |
| Higher education | 20 | 71.4 | 8 | 28.6 | |
| **Educational level (Mother)** | | | | | Monte Carlo P=0.000* |
| Illiterate/read & write | 190 | 100 | 0 | 0 | |
| Basic education | 15 | 93.75 | 1 | 6.25 | |
| Higher education | 7 | 50 | 7 | 50 | |
| **Type of work (Father)** | | | | | Monte Carlo P=0.000* |
| Manual/skilled worker | 178 | 100 | 0 | 0 | |
| Farmer | 19 | 100 | 0 | 0 | |
| Employee | 15 | 65.2 | 8 | 34.8 | |
| **Work (Mother)** | | | | | Fisher's Exact P=0.000* |
| House wives | 200 | 98.5 | 3 | 1.5 | |
| Working | 12 | 70.6 | 5 | 29.4 | |
| **Family income** | **Mean ± SD** | | **Mean ± SD** | | **Test of significance** |
| **Average family income (LE)** | 1379.41± 721.5 | | 4250±1752.5 | | Student t test t=-4.618 P=0.002* |
| **Average income of the family member (LE)** | 224.9±155.1 | | 1045.1±476 | | Mann Whitney U Z=-3.778 P=0.000* |

* Means statistically significant.

## Section III: association between intestinal parasitic infestations and the housing condition of studied children

As regard the residence of the studied children, table (4) reveals that 99.5% of children living in rural areas were infested with one or more intestinal parasites, but only two thirds of those living in semi-urban areas were infested (66.6%) and this difference is statistically significant (p=0.000).

Also, the majority (94.3%) of those living in concrete buildings were infested with one or more intestinal parasites, compared to 99% of those living in non concrete buildings, with no significant difference (p=0.078).

Table (4) also shows that 98.1% of those breeding animals at home were infested with one or more intestinal parasites, compared to 94.7% of those who don't breed animals at home, with no significant difference (p=0.28).

Children who were infested with one or more intestinal parasites , more or less equally distributed among those having safe water supply at home (96.3%) and those having unsafe water supply (96.8%) with no significant difference (p=1) as shown in table (4).

Also, the majority of the studied children having sanitary sewage disposal at home were infested with one or more intestinal parasites (96%), while all studied children who didn't have sanitary sewage disposal at home were infested, with no significant difference (p=1).

According to the average home crowding index of studied children, table (4) reveals that the mean home crowding index of infested children was 4.37±41.11, while that of non infested children was 0.97±6.25 and this difference is statistically significant (p=0.000).

**Table (4): Distribution of studied children according to the presence of intestinal parasitic infestations and their housing condition.**

| Housing condition | Intestinal infestation n=212 | | No intestinal infestation n=8 | | Test of significance |
|---|---|---|---|---|---|
| | N | % | N | % | |
| **Residence** | | | | | Fisher's Exact P=0.000* |
| Rural | 198 | 99.5 | 1 | 0.5 | |
| Semi-Urban | 14 | 66.6 | 7 | 33.4 | |
| **Type of building** | | | | | Fisher's Exact P=0.078 |
| Concrete | 115 | 94.3 | 7 | 5.7 | |
| Non- concrete | 97 | 99 | 1 | 1 | |
| **Breeding animals at home** | | | | | Fisher's Exact P=0.28 |
| Yes | 104 | 98.1 | 2 | 1.9 | |
| No | 108 | 94.7 | 6 | 5.3 | |
| **Availability of safe water supply** | | | | | Fisher's Exact P=1 |
| Yes | 182 | 96.3 | 7 | 3.7 | |
| No (water pump) | 30 | 96.8 | 1 | 3.2 | |
| **Availability of sanitary sewage disposal** | | | | | Fisher's Exact P=1 |
| Yes | 192 | 96 | 8 | 4 | |
| No | 20 | 100 | 0 | 0 | |
| **Home crowding index** | | | | | Mann-Whitney Z=-3.611 P=0.00* |
| Mean ± SD | 4.37+41.11 | | 0.97+6.25 | | |

* Means statistically significant.

## Section IV: association between intestinal parasitic infestations and the hygienic practices of the studied children and their families

According to the hygienic practice of the studied children and their families, table (5) demonstrates that 99.2% of the studied children who wash their hands less than three times per day were infested with one or more intestinal parasites, compared to 92.6% of those who wash their hands three times or more per day, and this difference is statistically significant (p=0.02).

It's noted that 95.6% of those whose mothers wash their hands before food prepare were infested with one or more intestinal parasites, while 98.3% of those whose mothers don't wash their hands before food prepare were infested, with no significant difference (p=0.45) as shown in table (5).

moreover, table (5) reveals that 96.1% of the studied children who eat washed fruits and vegetables were infested with one or more intestinal parasites, but all of those who don't wash fruits and vegetables before eating were infested, with no significant difference (p=1).

It's noted that 198 of the studied children used to eat meals outside their homes, 98.5% of them were infested with one or more intestinal parasites, while about three quarters of those who eat their meals only at home were infested (77.3%), and this difference is statistically significant (p=0.000) as demonstrated in table (5).

**Table (5): Distribution of studied children according to the presence of intestinal parasitic infestations and hygienic practices of them and their families.**

| Hygienic practices | Intestinal infestation n=212 | | No intestinal infestation n=8 | | Test of significance |
|---|---|---|---|---|---|
| | N | % | N | % | |
| **Frequency of washing hands per day** | | | | | Fisher's Exact P=0.02* |
| Less than three times | 124 | 99.2 | 1 | 0.8 | |
| Three times or more | 88 | 92.6 | 7 | 7.4 | |
| **Mother wash hands before prepare food** | | | | | Fisher's Exact P=0.45 |
| Yes | 153 | 95.6 | 7 | 4.4 | |
| No | 59 | 98.3 | 1 | 1.7 | |
| **Wash vegetables and fruits before eating** | | | | | Fisher's Exact P=0.1 |
| Yes | 198 | 96.1 | 8 | 3.9 | |
| No | 14 | 100 | 0 | 0 | |
| **Eating meals outside home** | | | | | Fisher's Exact P=0.000* |
| Yes | 195 | 98.5 | 3 | 1.5 | |
| No | 17 | 77.3 | 5 | 22.7 | |

* Means statistically significant.

# Part IV: effects of intestinal parasitic infestations

## Section I: association between intestinal parasitic infestations among studied children and the results their clinical examination

The relation between presence or absence of intestinal parasitic infestation in the studied children, and presence or absence of related manifestations is shown in table (6).it was revealed that about three quarters of the children infested with one or more intestinal parasites complained of frequent abdominal colic (75.9%), compared to only 12.5% of those free from intestinal infestations, and this difference is statistically significant (p=0.001).

As regard diarrhea, table (6) shows that 11.3% of the intestinally infested children had frequent diarrhea, compared to 12.5% of non intestinally infested children, with no significant difference (p=0.239).

Regarding constipation, table (6) reveals that 6.1% of the intestinally infested children had frequent constipation, While no case of the non intestinally infested children have frequent constipation, with no significant difference (p=1).

As regard pruritus ani, table (6) demonstrates that 57.1% of the intestinally infested children had frequent pruritus ani, While all cases of the non intestinally infested children didn't have pruritis ani, and this difference is statistically significant (p=0.001).

Regarding fatigue, table (6) shows that 30.2% of the intestinally infested children had frequent fatigue, While all cases of the non intestinally infested children didn't have fatigue, and this difference is statistically significant (p=0.046).

Also, table (6) demonstrates that about two thirds of the intestinally infested children had frequent lack of concentration (69.3%), compared to half cases of the non intestinally infested children (50%), with no significant difference (0.322).

As regard polyphagia, 9.9% of the intestinally infested children had polyphagia, While all cases of the non intestinally infested children didn't have polyphagia, with no significant difference (p=0.711).

Regarding anorexia, 84.4% of the intestinally infested children had frequent anorexia, compared to 87.5% of the non intestinally infested children, with no significant difference (p=0.196).

Also, table (6) shows that the majority of the intestinally infested children were pale (96.2%), compared to 37.5% of the non intestinally infested children, and this difference is statistically significant (p=0.000).

**Table (6): Distribution of the studied children according to presence of intestinal parasitic infestations and presence of related clinical manifestations.**

| Clinical examination | Intestinal infestation n=212 | | No intestinal infestation n=8 | | Test of significance |
|---|---|---|---|---|---|
| | N | % | N | % | |
| **Symptoms** | | | | | |
| **Abdominal colic** | | | | | Monte Carlo P=0.001* |
| Frequent | 161 | 75.9 | 1 | 12.5 | |
| Rare | 37 | 17.5 | 4 | 50 | |
| Never | 14 | 6.6 | 3 | 37.5 | |
| **Diarrhea** | | | | | Monte Carlo P=0.239 |
| Frequent | 24 | 11.3 | 1 | 12.5 | |
| Rare | 55 | 25.9 | 0 | 0 | |
| Never | 133 | 62.7 | 7 | 87.5 | |
| **Constipation** | | | | | Monte Carlo P=1 |
| Frequent | 13 | 6.1 | 0 | 0 | |
| Rare | 19 | 9 | 1 | 12.5 | |
| Never | 180 | 84.9 | 7 | 87.5 | |
| **Pruritis around anus** | | | | | Monte Carlo P=0.001* |
| Frequent | 121 | 57.1 | 0 | 0 | |
| Rare | 16 | 7.5 | 0 | 0 | |
| Never | 75 | 35.4 | 8 | 100 | |
| **Fatigue** | | | | | Monte Carlo P=0.046* |
| Frequent | 64 | 30.2 | 0 | 0 | |
| Rare | 29 | 13.7 | 0 | 0 | |
| Never | 119 | 56.1 | 8 | 100 | |
| **Lack of concentration** | | | | | Monte Carlo P=0.322 |
| Frequent | 147 | 69.3 | 4 | 50 | |
| Rare | 28 | 13.2 | 1 | 12.5 | |
| Never | 37 | 17.5 | 3 | 37.5 | |
| **Increase appetite** | | | | | Monte Carlo P=0.711 |
| Frequent | 21 | 9.9 | 0 | 0 | |
| Rare | 8 | 3.8 | 0 | 0 | |
| Never | 183 | 86.3 | 8 | 100 | |
| **Loss of appetite** | | | | | Monte Carlo P=0.196 |
| Frequent | 179 | 84.4 | 7 | 87.5 | |
| Rare | 6 | 2.8 | 1 | 12.5 | |
| Never | 27 | 12.8 | 0 | 0 | |
| **Sign** | | | | | |
| **Pallor** | | | | | Fisher's Exact P=0.000 |
| Yes | 204 | 96.2 | 3 | 37.5 | |
| No | 8 | 3.8 | 5 | 62.5 | |

* Means statistically significant.

## Section II: Consequences of intestinal parasitic infestations

Table (7) shows that slightly more than half of the intestinally infested children were of normal weight (53.3%), compared to 37.5% of the non intestinally infested children, with no significant difference (p=0.48). also, table (7) reveals that the mean level of hemoglobin of the intestinally infested children was 9.87±0.75, compared to 12.88±2.15 in the non intestinally infested children, and this difference is statistically significant (p=0.006).

**Table (7): Distribution of studied children according to the presence of intestinal parasitic infestations and their BMI and hemoglobin level.**

| | Under weight | | Normal weight | | Test of Significance | Hemoglobin level Mean ± SD | Test of Significance |
|---|---|---|---|---|---|---|---|
| | N | % | N | % | | | |
| **Intestinal infestation** | 99 | 46.7 | 113 | 53.3 | Fisher's exact test P = 0.48 | 9.87±0.75 | Student t test t = 3.94 P = 0.006* |
| **No Intestinal infestation** | 5 | 62.5 | 3 | 37.5 | | 12.88± 2.15 | |

* Means statistically significant.