RESULTS

The result of this study are presented in 9 parts as shown in tables from (1 to 34).

Part 1: farmers' sociodemographic characteristics, family history of bilhariziasis and their health status.   (table 1 to 2)

Part 2: Distribution of farmers' knowledge about Bilhariziasis.

(Table 3 to 5 and figure 1 to 5)

Part 3: Distribution of farmers' attitudes toward Bilhariziasis.   (table 6 to 7)

Part 4: Distribution of farmers' practice toward Bilhariziasis.   (table 8 to 9)

Part 5: Relations between farmers' age, sex, education, health status, family history of Bilhariziasis and their total knowledge, attitude and practice toward Bilhariziasis.   (table 10 to 21)

Part 6: Nurses' sociodemographic characteristics.   (Table 22 to 23)

Part 7: Distribution of Nurses' knowledge about Bilhariziasis.

(table 24 to 30 and figure 6 to 14)

Part 8: Distribution of Nurses' role toward Bilhariziasis.

(table 31 and Fig. 15)

Part 8: relations between nurses' sociodemographic characteristics and their total knowledge.   (table 32 to 33)

N.B:

P > 0.05 : No statistical significant difference.

P < 0.05: Statistical significant difference.

P < 0.001: highly statistical significant difference.

Results of the Study Samples (Farmers and Nurses)

Table (1): Farmers' socio-demographic characteristics in percentage distribution (n =100).

Socio-demographic data	Frequency	Percent
Age/ year		
15 –	18	18
25 –	31	31
35 –	32	32
45 – 55	19	19
$\bar{x} = 34.59 \pm 10.44$		
Sex		
Male	68	68
Female	32	32
Education		
illiterate	48	48
read and write	25	25
primary school	12	12
preparatory school	6	6
secondary school	7	7
university Education	2	2
Income/ pound (n = 63)		
100 –	19	30.2
200 –	23	36.5
300 –	14	22.2
400 –	4	6.3
500 –	0	0
600 – 700	3	4.8
$\bar{x} = 248.57 \pm 119.24$		
Home condition		
Water supply		
Yes	100	100
No	0	0
Bath room		
Yes	100	100
No	0	0
Sewage disposal system		
Yes	20	20
No	80	80

Table (1) showed that the farmers age ranged between 15-55 year old and the farmers who aged from 35 to less than 45 year old and 25 to less than 35 year old were (32%) and 31% each respectively, with the mean age = 34.59 $\pm$ 10.44. While more than two thirds (68%) of the sample were males and 32% were females.

Concerning the education, 48% of the sample were illiterate and only 2% of the sample were university education. In relation to the income, the farmers who had 200 to less than 300 pound/monthly were 36.5%, while only 4.8% of the sample had 600- 700 pound /month, with mean income = 248.57 $\pm$ 119.24. Regarding home condition, all the sample had water supply and bath rooms, while 20% of farmers' houses served with Municipality sewage disposal system.

Table (2): Frequency distribution of the farmers' family history of Bilhariziasis and farmers' health status (n =100).

Items	Frequency	Percent
Family History of Bilhariziasis		
Bilhariziasis Infection of a family member		
Yes	43	43
No	46	46
Don't know	11	11
Recovery of infected family member (n=43)		
Yes	25	58.1
No	17	39.5
Don't Know	1	2.4
Health status of the farmers		
Frequency of Bilhariziasis infection		
once	19	19
twice	77	77
three times	4	4
Complications		
Liver cirrhosis	18	
Hepatosplenomegaly	10	18
Cancer bladder	2	10
Esophageal varices	0	2
Don't know	75	0
All responses are mutually exclusive		75
Effect of Bilhariziasis on physical work capacity		
Yes	56	56
No	44	44
Recovery from the disease		
Yes	60	60
No	40	40

Table (2) illustrated that the farmers whose family members had Bilhariziasis infection were 43% while 11% of them didn't know if there is infection of their family members or not. Regarding the recovery of infected family member 58.1% out of 43 farmers their infected family members were cured and only 2.4% of them didn't know if their family members cured.

More than three quarters of the sample (77%) was infected with Bilhariziasis twice while only 4% of the sample was infected for three times. While complications to the farmers, 75% of the sample didn't know if any complications happened for them and it is observed that farmers who have got (liver cirrhosis and hepatosplenomegaly) were respectively 18% and 10% and only 2% of them had cancer bladder and no one had esophageal varices.   Regarding the effect of disease on physical work capacity. More than half of the sample (56%) was affected by the disease. Recovery from the disease 60% farmers had been cured while 40% are still suffering from disease.

Table (3): Frequency distribution of the farmers' knowledge about life
cycle of Bilhariziasis (n = 100).

Items	Frequency	Percent
Contaminated water		
Correct	71	71
Incorrect	1	1
Don't know	28	28
Entry through the human body		
Correct	40	40
Incorrect	7	7
Don't know	53	53
Snails needed for mature worms		
Correct	11	11
Incorrect	1	1
Don't know	88	88
Types of snails (n =11)		
Correct	2	18.2
Incorrect	9	81.8
Bilhariziasis in human body		
Correct and complete.	8	8
Correct but incomplete	35	35
Don't know.	57	57
Causative agents		
Correct and complete.	4	4
Correct but incomplete.	86	86
Don't know.	10	10

Table (3) showed that more than two thirds of farmers (71%) responded with correct answer about the types of contaminated water, only 1% of them responded incorrectly while 28% didn't know. As regards entry through the human body, more than half of the sample 53% didn't know and 40% answered correctly while only 7% of the farmers answered incorrectly.

Eighty eight percent of farmers didn't know that Bilhariziasis disease needs snails to be mature worms, only 11% of them answered correctly. Concerning the names of snails, only 2 out of 11 farmers 18.2%

were responded with correct answer. In relation to the living place of Bilhariziasis in the human body, more than half of the sample (57%) didn't know, 35% responded with correct but incomplete answer and only 8% of them answered correctly and completely. Causative agents in patient's defection or urination 86% of farmers answered correctly but incompletely, while 10% didn't know and only 4% of them responded with correct and complete answer.

Table (4): Frequency distribution of the farmers' knowledge about Bilhariziasis types and ways of spread (n=100).

Items	Frequency	Percent
Farming and causes of Bilhariziasis		
Correct	90	90
Incorrect	3	3
Don't know	7	7
Types of Bilhariziasis		
Correct and complete	1	1
Correct but incomplete	22	22
Don't know	77	77
Bilhariziasis spread in Boys more than girls		
Correct	7	7
Incorrect	40	40
Don't know	53	53
Ways of spread		
Correct and complete	5	5
Correct but incomplete	88	88
Don't' know	7	7

Table (4) illustrated that majority of the sample (90%) knew that cultivation is the most work that causes Bilhariziasis infection but only 3% of the sample answered incorrectly and 7% didn't know . More than three quarters of farmers (77%) didn't know these types but only 1% listed the types correctly and completely. As spread of disease in boys more than girls, only 7% of the sample responded with correct answer and more than half of the sample (53%) didn't know. Ways of spread of Bilhariziasis, 88% of the farmers answered correctly but incomplete while only 5% of them answered correctly and completely.

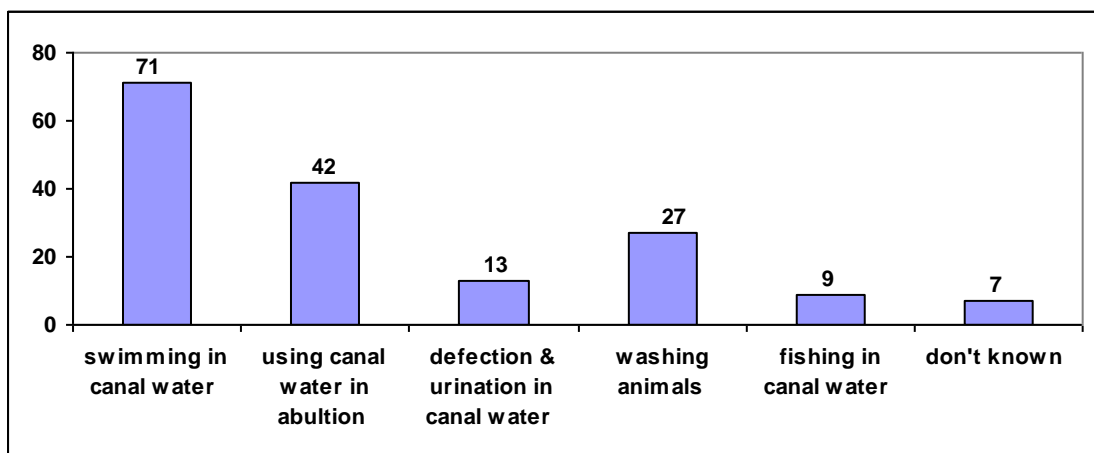*Figure (1):* **Farmers' knowledge regarding ways of spread of Bilhariziasis**.

Figure (1) showed that 71% of the farmers chose swimming in canal water as a way of spread of Bilhariziasis and 7% didn't know the ways of spread of disease.

Table (5): Frequency distribution of farmers' knowledge about symptoms and signs, complications and ways of prevention of Bilhariziasis (n=100).

Items	Frequency	Percent
Symptoms and signs		
Correct and complete	0	0
Correct but incomplete	97	97
Don't know	3	3
Complications		
Correct and complete	2	2
Correct but incomplete	39	39
Don't know	59	59
Ways of prevention		
Correct and complete	8	8
Correct but incomplete	87	87
Don't know	5	5
Source of farmers' knowledge		
Correct and complete	2	2
Correct but incomplete	98	98
Don't know	0	0

Table (5) indicated that the majority (97%) responded with correct but incomplete answer about the symptoms of Bilhariziasis and no one answered correctly. Concerning complications of Bilhariziasis, more than half of farmers (59%) didn't know the complications while only 2% of them respond with correct and complete answered while the rest of the sample (39%) respond correctly but incomplete.

Prevention of Bilhariziasis, more than three quarters of the farmers (87%) answered correctly but incomplete while only 8% of them respond with correct and complete answer and 5% didn't know. Regarding the source of farmer's knowledge, nearly all the sample (98%) respond with correct but incomplete answer while only 2% of them respond with correct and complete answer.

Figure (2): Symptoms and signs of Bilhairiziasis as mentioned by Farmers
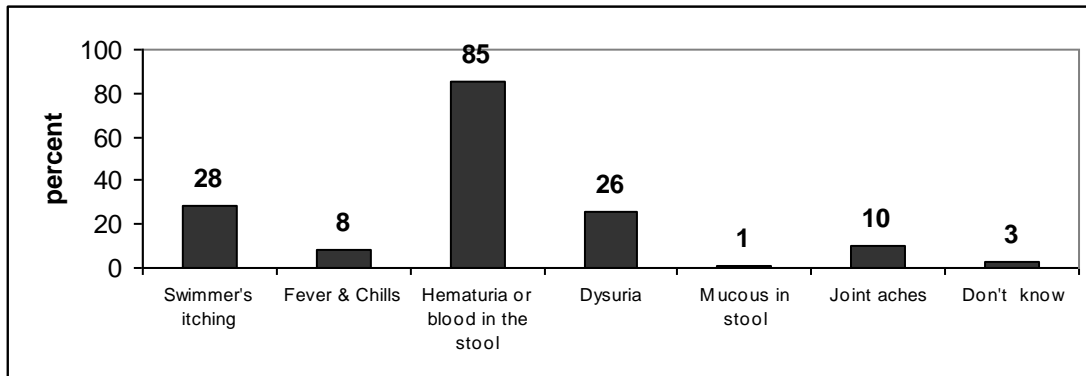
This figure showed that 85% of the farmers chose hematuria or blood in stool as a main symptom of Bilharizial disease with only 1% chose Mucous in stool.

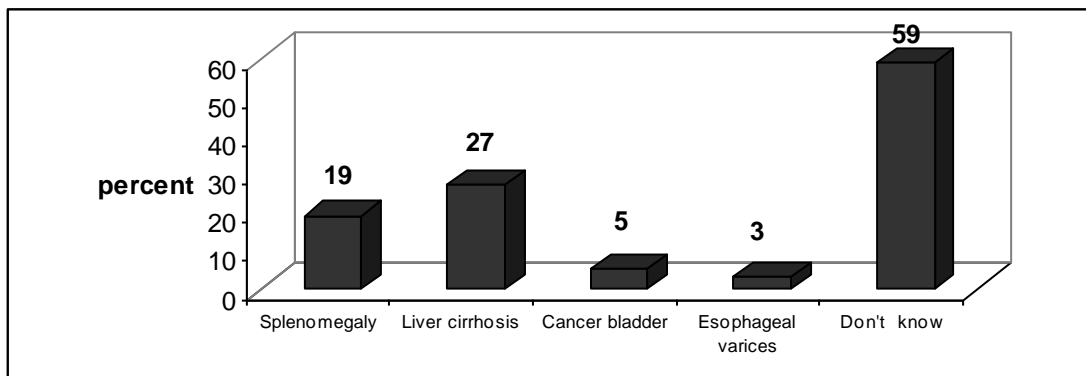**Figure (3): Complications of Bilhariziasis as stated by farmers**

Figure (3) illustrated that more than half of the farmers (59%) didn't know complications of bilhariziasis and those who chose (esophageal varices) and (cancer bladder) were respectively (3%) and (5%).

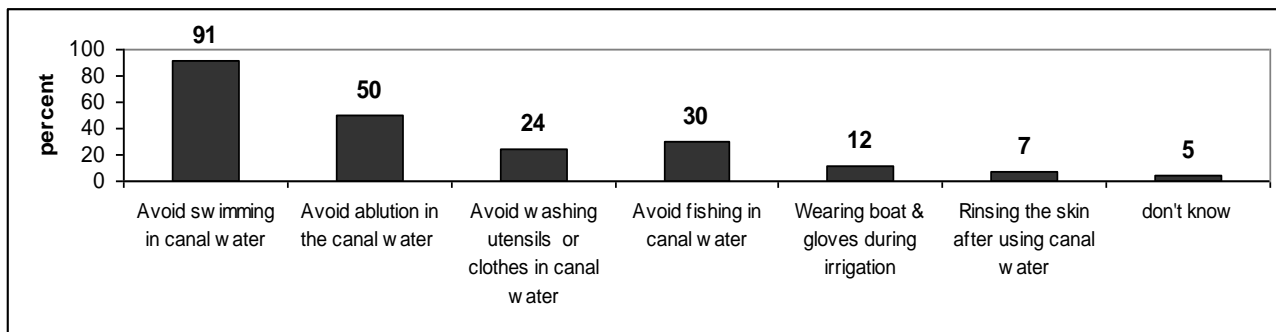**Figure (4): Ways of prevention of Bilhariziasis**

Figure (4) illustrated that the majority of the farmers (91%) chose avoid swimming in canal water as a preventive way of the disease and only (5%) didn't know.

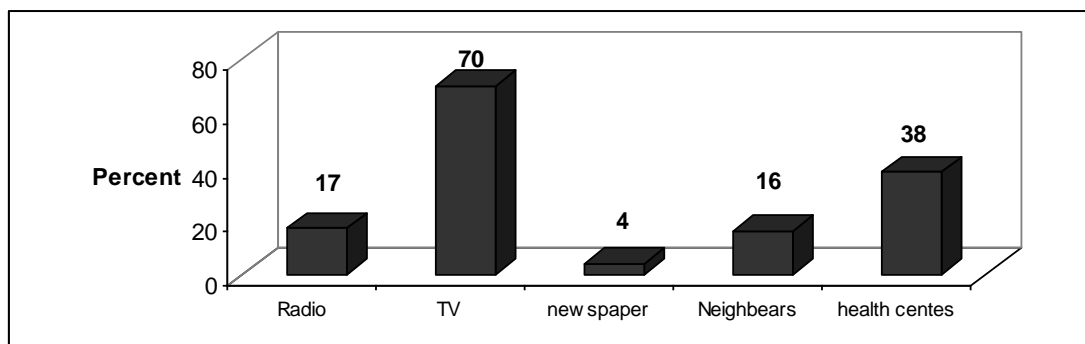**Figure (5): Sources of farmers' knowledge**

Figure (5) documented that more than two thirds of the farmers (70%) acquired their knowledge from T.V. and only 4% of them from newspaper.

Table (6): Frequency distribution of the farmer's attitudes (fearing of, responsibility of infection, irrigation, ablution and swimming in contaminated water) toward Bilhariziasis (n=100).

Items	Frequency	Percent
Fearing of Bilhariziasis infection		
Yes	100	100
No	0	0
Don't know	0	0
Man responsibility of Bilhariziasis infection.	29	29
Yes	24	24
No	47	47
Don't know.		
Wearing boat and gloves during irrigation prevent Bilhariziasis infection		
Yes	52	52
No	33	33
Don't know	15	15
Using canal water in ablution causes Bilhariziasis infection		
Yes	90	90
No	10	10
Don't know	0	0
Swimming in canal water causes Bilharizilasis		
Yes	95	95
No	0	0
Don't know	5	5

Table (6) showed that, the majority of farmers who had positive attitudes and agree on these statements (fearing of Bilhariziasis infection, swimming in canal water causes Bilhariziasis, using canal water in ablution causes Bilhariziasis infection) were 100, 95%, 90% respectively. On the other hand, the farmers who had negative attitudes disagree on these statements (wearing boat and gloves during irrigation prevent infection, man is responsible for Bilhariziasis infection and using canal water in ablution causes Bilhariziasis infection) were 33%, 24% and 10% respectively.

The table also showed that farmers who didn't know these statements (man is responsible for Bilhariziasis infection, wearing boat and gloves during irrigation prevent infection, swimming in canal water causes infection) were 47%, 15% and 5% respectively.

Table (7): Frequency distribution of farmers' attitudes (washing utensils, check up, dangers of) toward Bilhariziasis (n=100).

Items	Frequency	Percent
Washing utensils in canal water causes Bilhariziasis		
Yes	94	94
No	6	6
Don't know	0	0
If there is a special place for washing utensils and clothes, will you use it (for ♀ only n= 32).		
Yes	32	100
No	0	0
Don't know	0	0
Are you think that periodic check up for Bilharizasis is important		
Yes	96	96
No	0	0
Don't know	4	4
Dangers of Bilhariziasis is a lot		
Yes	92	92
No	0	0
Don't know	8	8

Table (7) illustrated that, all female sample agree on statement "if their is a special place for washing utensils and clothes, I will use it" and the farmers who had positive attitude and agree on these statements (periodic check up for Bilhariziasis is important, washing utensils in canal water causes Bilhariziasis infection and dangers of Bilhariziasis is a lot) were 96%, 94% and 92% respectively .

On the other hand 6% of farmers had negative attitude and disagree on this statement "washing utensils in canal water causes infection". While the farmers who didn't know these statement (dangers of Bilhariziasis is a lot and check up for Bilhariziasis is important) were 8% and 4% respectively.

Table (8): Frequency distribution of farmers' practices (irrigation, Bathing, washing utensils and ablution) toward Bilhariziasis (n=100).

Items	Frequency	Percent
Type of irrigation (only for ♂ n= 68)		
Trickle irrigation.	0	0
Perennial irrigation.	68	100
Bathing in canal water (only for ♂ n = 68)		
Correct.	24	35.3
Incorrect.	44	64.7
Washing utensils or clothes in canal water (only for ♀ n = 32)		
Correct	0	0
Incorrect	32	100.0
Washing animals in canal water		
Correct	30	30
Incorrect.	70	70
Ablution in canal water		
Correct	30	30
Incorrect	70	70

Table (8) illustrated that all the males follow perennial irrigation and all the females wash utensils or clothes in canal water. It is also observed that farmers who didn't practice the following: (Bathing in canal water, washing animals in canal water and ablution in canal water) were 35.3% out of 68 farmer, 30% and 30% respectively.

On the other hand the farmers who practice the following: (washing animals in canal water, ablution in canal water and bathing in canal water) were respectively 70%, 70% and 64.7% out 68 farmers respectively.

Table (9): Frequency distribution of farmers' practice (fishing, check up, taking drug, defection or urination in canal water and frequency of taking Bilhariziasis drug) toward Bilhariziasis (n= 100).

Items	Frequency	Percent
Fishing in canal water		
Correct	60	60
Incorrect	40	40
Periodic check up for Bilhariziasis		
Correct	23	23
Incorrect.	77	77
Taking drug prescribed by the doctor		
Correct	98	98
Incorrect	2	2
Defecation or urination in canal water		
Correct	64	64
Incorrect	36	36
Frequency of taking Bilhariziasis drug		
Once	62	62
Twice	24	24
Three time	14	14

Table (9) showed that the farmers who practice the following (taking drug prescribed by the doctor, defection or urination in canal water and fishing in canal water) were 98%, 64% and 60% respectively. On the other hand 77% of farmers didn't do periodic check up for Bilharizasis.

Table (10): Pearson Chi-squire of farmers' knowledge, sex and educational level.

Variables	Complete knowledge n = 16		Incomplete knowledge n = 84		Pearson X^2	P
	Frequency	Percent	Frequency	Percent		
Sex						
Male	16	100	52	61.9	8.946	<0.003
Female	0	0	32	38.1		
Education:						
Illiterate.	4	25	44	52.4		
Read and write	3	18.8	22	26.2		
Primary school.	2	12.5	10	11.9		
Preparatory	0	0	6	7.1	30.04	<0.001
Secondary	5	31.3	2	2.4		
University	4	12.5	0	0		

The above table showed that more than half of the farmers who had incomplete knowledge (61.9%) were males while the rest of them (38.1%) were females. Highly significant difference was detected between farmers' knowledge and their sex. Also highly significant difference was detected between levels of education and the farmers' knowledge.

Table (11): Relationship of farmers' knowledge and age.

Variables	Complete knowledge N = 16		Incomplete knowledge N = 84		t	P
	$\overline{X}$	SD	$\overline{X}$	SD		
Age	40.06	14.016	33.547	9.3711	2.337	<0.05

Table (11) illustrated that a statistical significant difference between farmers' knowledge and their age.

Table (12): Relation of farmers' knowledge according to family history of
Bilhariziasis.

Variables	Complete knowledge N = 16		Incomplete knowledge N = 84		X^2	P
	Frequency	Percent	Frequency	Percent		
Bilhariziasis infection of a family member.						
Yes	4	25	39	46.4		
No	12	75	34	40.5	7.013	<0.05
Don't know	0	0	11	13.1		

Table (12) showed that a statistical significant difference was detected between the farmers' knowledge and family history of bilharsiasis infection.

Table (13): Relation of farmers' knowledge and their health status

Health status	Complete knowledge N = 16		Incomplete knowledge N = 84		Pearson X^2	P
	Frequency	Percent	Frequency	Percent		
Frequency of infection						
Once.	16	100	61	72.6	5.690	>0.05
Twice	0	0	19	22.6		
Three times	0	0	4	4.8		
Complications:						
Liver cihrosis	1	6.3	12	14.2		
	1	6.3	4	4.8	2.457	>0.05
Hepatosplenomegaly	0	0	5	6		
Cancer bladder	0	0	2	2.4		
Esophageal varices	14	87.4	61	72.6		
Don't know						
Effect of Bilhariziasis on physical work capacity	6	37.5	50	59.5		
Yes	10	62.5	34	40.5	2.646	>0.05
No						
Recovery:						
Yes	13	81.2	47	56	3.584	>0.05
No	3	18.8	37	44		

The above table revealed that all the farmers with complete knowledge had got one attach of infection and also (72.6%) of the farmers with incomplete knowledge. While only (4.8%) of them had three times of infection with no statistical significant difference.

Concerning complications, (72.6%) of the farmers with incomplete knowledge, didn't know if they had complications or not but only (2.4%) of them had esophageal varices, 87.4% of the farmers with complete knowledge didn't know if they had complications or not. Also 62.5% of the farmers with complete knowledge had been affected physically with the disease compared with 59.5% had not been affected by the disease.

Table (14): Relation of farmers' practice according to sex and education.

Variables	Correct practice n = 44		Incorrect practice n = 56		Pearson X^2	P
	Frequency	Percent	Frequency	Percent		
Sex :						
Male.	44	100	24	42.9	36.975	<0.001
Female.	0	0	32	57.1		
Education:						
Illiterate	18	40.9	30	53.6		
Read and write	10	22.7	15	26.8		
Primary school	6	13.6	6	10.7	8.927	>0.05
Preparatory school	2	4.6	4	7.1		
Secondary school	6	13.6	1	1.8		
University Education	2	4.6	0	0		

Table (14) documented that (100%) of the farmers who practice correctly were males while (57.1%) of the farmers who practice incorrectly were females and (42.9%) of the farmers who practice incorrectly were males. With statistical significant difference.

Concerning the education, (53.6%) of the farmers who did incorrect practice were illiterate while only (1.8%) of the farmers who did incorrect practice had secondary school four point and six percent of farmers who practice correctly had preparatory school and university education each respectively without statistical significant difference.

Table (15): Relation of farmers' practice according to their age.

Age	Correct practice n = 44		Incorrect practice n = 56		t	P
	$\overline{X}$	SD	$\overline{X}$	SD		
Age	37.613	11.287	32.214	9.1547	2.642	<0.001

Table (15) showed that forty four farmer did correct practice with the mean age = 37.61 ± 11.287 while (56) farmer who did incorrect with the mean age = 32.21 ± 9.15 with highly statistical significant difference.

Table (16): Relation of farmers' practice according to their family history of Bilhariziasis.

Family history	Correct practice n = 44		Incorrect practice n = 56		Pearson X^2	P
	Frequency	Percent	Frequency	Percent		
Bilhariziasis infection of a family member						
Yes	13	29.5	30	53.6		
No.	29	65.9	17	30.4	13.054	<0.001
Don't know.	2	4.5	9	16.1		
Recovery of infected family member (n = 43)						
Yes	1.0	40	2	11.8		
No.	15	60	15	88.2	4.406	>0.05
Don't know.	0	0	1	100		

The above table showed that (65.9%) of the farmers who did correct practice their family members didn't had Bilhariziais infection while the minority, (4.5%) of the farmers who practice correctly, didn't know if there is infection of a family member or not also (53.6%) of the farmers who practice incorrectly their family members had bilhariziasis infection while (16.1%) of the farmers who did incorrect practice didn't know if there is infection of a family member or not. With highly statistical significant difference.

Table (17): Relation of farmers' practice according to their health status.

Health status	Correct practice n = 44		Incorrect practice n = 56		Pearson X^2	P
	Frequency	Percent	Frequency	Percent		
Frequency of Bilhariziasis infection						
Once	38	86.4	39	69.6	5.227	>0.05
Twice	6	13.6	13	23.2		
Three times.	0	0	4	7.2		
Complications :						
Liver cirrhosis	3	6.8	10	17.9		
Hepatosplenomegaly.	2	4.5	3	5.4	6.543	>0.05
Cancer bladder	1	2.2	4	7.1		
Esophageal varices	2	4.5	0	0		
Don't know	36	81.8	39	69.6		
Effect of Bilhariziasis on physical work						
Yes.	23	52.3	33	58.9	0.443	>0.05
No.	21	47.7	23	41.1		
Recovery from the disease.	34	77.3	26	46.4		
Yes.	10	22.7	30	53.6	9.767	<0.002
No.						

The above table illustrated that (86.4%) of the farmers who practice correctly had infected with bilhariziasis once while the rest of the farmers who did correct practice (13.6%) had twice infection of bilhariziasis. Also (69.6%) of the farmers who practice in correctly had once infection of bilhariziasis while only (7.2%) of them had three times of infection without statistical significant difference.

Concerning the effect of disease on physical capacity, (58.9%) of the farmers who practice in correctly had been affected by the disease while (52.3%) of the farmers who practice correctly had been affected by the disease. Without statistical significant difference. Regarding recovery from the disease, it was noted that (77.3%) of the farmers who practice correctly has been cured while (53.6%) of the farmers who did incorrect practice hadn't been cured. Highly statistical significant difference was detected.

Table (18): Relation of farmers' attitude according to their age.

Age	Positive attitude N = 75		Negative attitude N = 16		No respond N = 9		Pearson X²	P
	Frequency	Percent	Frequency	Percent	Frequency	Percent		
15 –	12	16	5	31.3	1	11.2		
25 –	20	26.7	8	50	3	33.3		
35 –	25	33.3	2	12.5	5	55.5	11.914	>0.05
45– 55	18	24	1	6.3	0	0		

Table (15) illustrated that 55.5% of the farmers' age that who had not respond were between 35 to less than 45 years, while only (11.2%) of the farmers who had not respond aged from 15 to less than 25 years, also 50% of the farmers with negative attitude were aged from 25 to 34 years. In addition to 33.3% of the farmers who were positive attitude aged from (35 to less than 45 years old and 16% them aged from (15 to less than 25 years /old). No statistical significant difference was detected.

Table (19): Farmers' attitudes according to sex and educational levels

Variables	Positive attitude N = 75		Negative attitude N = 16		No respond N = 9		Pearson X²	P
	Frequency	Percent	Frequency	Percent	Frequency	Percent		
Sex								
Male	68	90.7	0	0	0	0	70.83	<0.001
Female	7	9.3	16	100	9	100		
Education								
Illiterate	32	42.7	9	65.3	7	77.8		
Read/write	21	28	2	12.5	2	22.2	12.38	>0.05
Primary	11	14.7	1	6.3	0	0		
Preparatory	3	4	3	18.8	0	0		
Secondary	6	8	1	6.3	0	0		
University	2	2.7	0	0	0	0		

Table (19) describe that the majority (90.7%) of the farmers who had positive attitude were males while only (9.3%) of the farmers who had positive attitude were females. Also all the farmers who had negative attitude were females while all the farmers who had not respond were females with highly statistical significant differences.

In relation to education, (77.8%) of the farmers who had not respond were illiterate while (22.2%) of them write. Also (65.3%) of the farmers who had negative attitude were illiterate while only (6.3%) of the farmers who had negative attitude had primary and secondary school each respectively. In addition to (42.7%) of the farmers who had positive attitude were illiterate while only (2.7%) them had university education with no statistical significant difference.

Table (20): Farmers' attitudes and family history of bilharizasis.

Family History	Positive attitude N = 75		Negative attitude N = 16		No respond N = 9		Pearson X^2	P
	Frequency	Percent	Frequency	Percent	Frequency	Percent		
Bilharizaiasis infection of a family member							13.560	<0.001
Yes	31	41.3	9	56.3	3	33.3		
No	38	50.7	2	12.5	6	66.7		
Don't know	6	8	5	31.3	0	0		
Recovery of infected family member(n = 43)							4.771	>0.05
Yes	19	76	10	58.8	1	100		
No	4	16	7	41.2	0	0		
Don't know	2	8	0	0	0	0		

Table (20) showed that (66.7%) of the farmers who didn't respond did not had infected family member and the rest of them (33.3%) had infected family member. Also (56.3%) of the farmers who were negative attitude had infected family member while only (12.5%) of them didn't had infected family member. In addition to more than half of the sample who were positive attitude (50.7%) didn't had infected family member while only (8%) of them didn't know if there is infection in their family members or not, with highly statistical significant difference.

Table (21): Relation ship of farmers' knowledge, attitude and practice.

Variables	Complete knowledge N = 16		Incomplete knowledge N = 84		Pearson X^2	P
	Frequency	Percent	Frequency	Percent		
Attitude						
Positive	16	100	59	70.2		
Negative	0	0	16	19	6.394	<0.05
No respond	0	0	9	10.7		
Practice						
Correct	16	100	28	33.3	24.24	<0.001
Incorrect	0	0	56	66.7		

Table 21 revealed that all the farmers with complete knowledge have got positive attitudes. Also 70.2% of the farmers with incomplete knowledge have got positive attitudes. Statistical significant difference was detected. Concerning farmers practice, all the farmers with complete knowledge did practice correctly, while 66.7% of the farmers with incomplete knowledge did practice incorrectly with highly statistical significant difference.

Table (22): Nurses' socio-demographic characteristics according to thier distribution (n = 80).

Socio demographic data	Frequency	Percent
Nurse age/ year old		
19 –	19	23.8
24 –	12	15
29 –	17	21.2
34 –	10	12.5
39 –	8	10
44 –	6	7.5
49 – 53	8	10
$\bar{x} = 32.28 \pm 9.99$		
Social status		
Married	76	95
Not Married	4	5
Educational level		
Diploma (3 years)	70	87.4
Diploma (Secondary education)	1	1.3
Bachelor of Nursing	5	6.3
Diploma with one year specialty	4	5
Nursing Job		
Nursing supervisor	6	7.5
Nurse	74	92.5

Table (22) showed that nurses age ranged between 19-53 years old with the mean age = 32.28 ± 9.99. About 23.8% aged from 19 to less than 24 years old and nurses who aged from 44 to less than 49 years old were 7.5%. The majority of nurses (95%) were married. Concerning the Educational level, 87.4% of nurses have got nursing diploma and only 1.3% graduated from secondary school while 6.3% of the sample had bachelor of nursing. Most of nurses (92.5%) are working as staff nurses and the rest (7.5%) were nursing supervisors.

Table (23): Nurses' experience and training courses in percentage distribution (n = 80).

Items	Frequency	Percent
Experience/ Years		
1 –	25	31.2
6 –	8	10
11 –	17	21.3
16 –	10	12.5
21 –	8	10
26 –	6	7.5
31 – 35	6	7.5
$\bar{x}$= 13.33 ± 9.82		
Training courses		
Yes	48	60
No	32	40
Types of the training courses (n = 48)		
Tuberculosis	11	22.9
Thyroid	7	14.6
Family Health nursing	16	33.33
Family planning	11	22.9
Health education	4	8.33
Flariasis control	9	18.75
Maternal and child care	5	10.41
Dehydration	5	10.41
Computer	3	6.25
Nutrition	4	8.33
Quality Improvement	4	8.33
Child welfare	3	6.25
Care of respiratory infection	2	4.2
Teeth care	1	2
All responses are mutually exclusive		

Table (23) showed that nurses who had experience from 6 to less than 26 years constituted 85% while nurses who had experiences from (26 to less than 31 year) and (31 – 35 year) were 7.5% each respectively and the mean years of experience = 13.33 ± 9.82. Sixty percent of nurses had training courses, as 33.33% of them in family medicine, 22.9% in family planning or tuberculosis 18.75% in flariasis control, while only 2% in care of teeth.

Table (24): Nurses' knowledge about definition , types, incubation period and symptoms of bilhariziasis in percentage distribution (n = 80).

Items	Frequency	Percent
Definition		
Correct	42	52.5
Incorrect	38	47.5
Types		
Correct and Complete	28	35
Correct but incomplete	44	55
Incorrect	8	10
Incubation period		
Correct and complete	2	2.5
Correct but incomplete	37	46.3
Incorrect	41	51.3
Primary symptoms		
Correct and complete	8	10
Correct but incomplete	70	87.5
Don't know	2	2.5
Secondary symptoms		
Correct and complete	30	37.5
Correct but incomplete	50	62.5
Don't know	0	0

As shown from table (24) more than half of the sample (52.5%) correctly mentioned the definition of Bilhariziasis. Also 55% of them mentioned its types correctly but incomplete. While knowledge about the incubation period, 51.3% of nurses were mentioned it incorrectly. Concerning the primary symptoms of Bilhariziasis, more than three quarters of the farmers (87.5%) respond with correct but incomplete answer while only 10% of them respond with correct and complete answer. Regarding secondary symptoms of Bilhariziasis more than half of the farmers answered correctly but incomplete while 37.5% of them answered correctly and complete.

Figure (6): Nurses' Knowledge of primary symptoms of Bilhariziasis
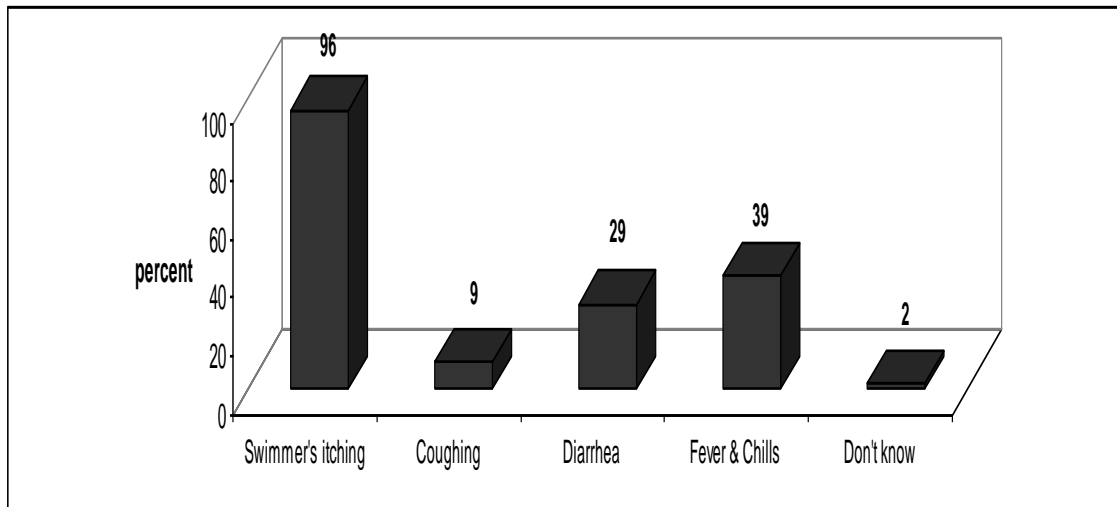
As shown from figure (6) more than three quarters of the nurses chose swimmer's itching as a primary symptom while only 2% of them didn't know any symptom.

Figure (7): Nurses' knowledge of secondary symptoms of Bilhariziasis.
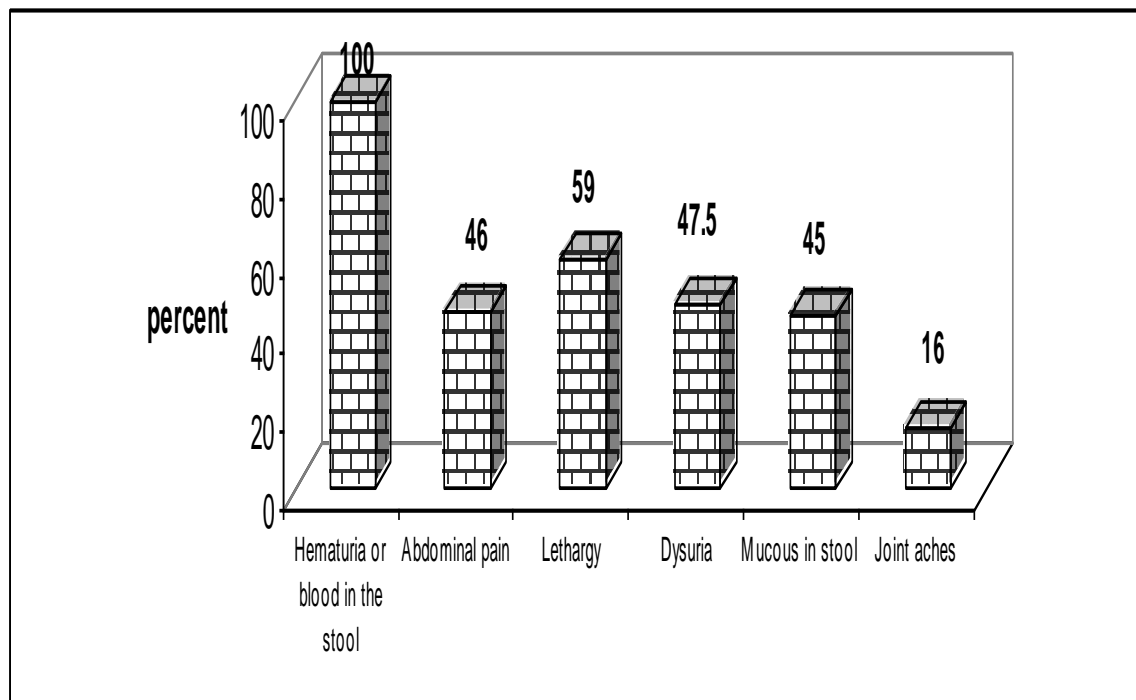
As shown from this figure, all the sample chose hematuria or blood in stool as a secondary symptom while 16% of them chose joint aches.

Table (25): Frequency distribution of the nurses' knowledge about methods of spread, complications and methods of prevention of Bilhariziasis (n = 80).

Items	Frequency	Percent
Methods of Infection		
Correct and complete	58	72.5
Correct but incomplete	22	27.5
Don't know	0	0
Complications of Bilhariziasis		
Correct and complete	49	61.3
Correct but incomplete	31	38.7
Don't know	0	0
Ways of prevention of Bilhariziasis		
Correct and complete	54	67.5
Correct but incomplete	26	32.5
Don't know	0	0

Table (25) showed that nearly three quarters of the nurses (72.5%) determined methods of infection correctly and completely. While, 27.5% of them determined the methods correctly but incomplete.

Concerning complications of Bilhariziasis, more than half of nurses (61.3%) determined the complications correctly and complete. While the rest of the sample (38.7%) respond with correct but incomplete answer. Way of prevention, 67.5% of nurses respond with correct and complete answer and the rest of them (32.5%) respond with correct but incomplete answer.

Figure (8): Nurses' knowledge about infection methods of Bilhariziasis.
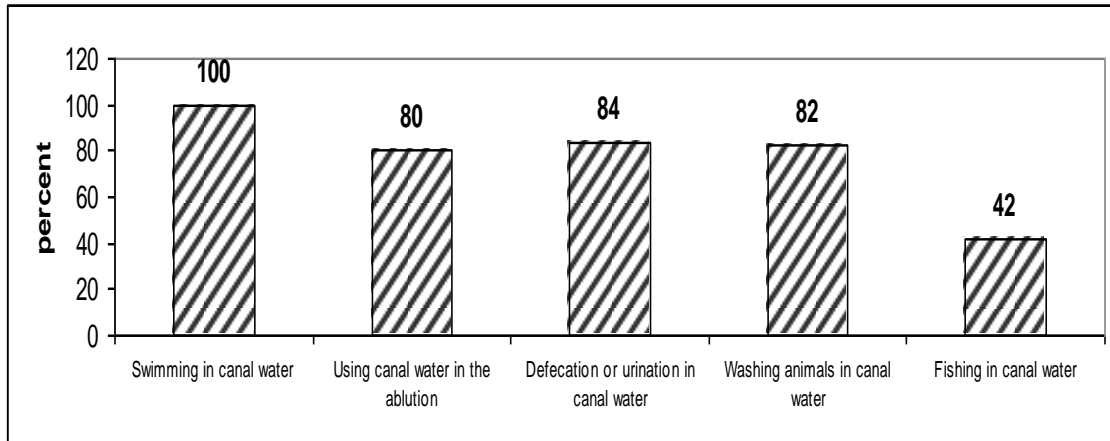

Figure (8) illustrated that all the nurses chose swimming in canal water as a method of infection while less than half of the sample (42%) chose fishing in canal water.

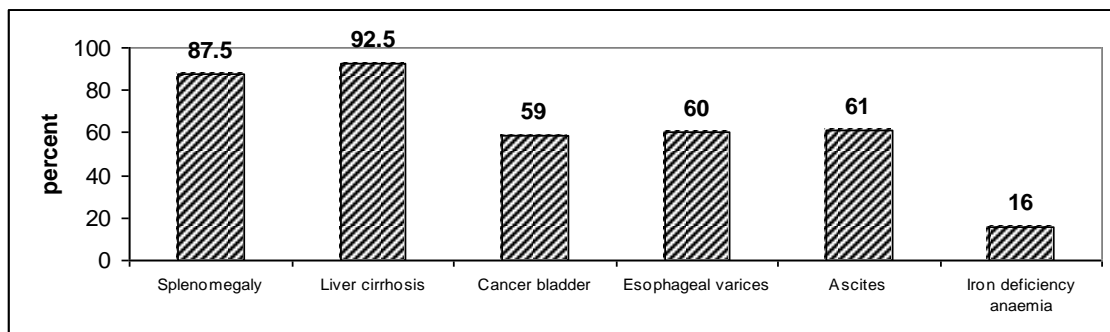**Figure (9): Nurses' knowledge about Complications of Bilhariziasis**

Figure (9) showed that 92.5% of the nurses said that liver cirrhosis is a complication of Bilhariziasis while only 16% of them said that iron deficiency Anaemia is a complication.

Figure (10): Nurses knowledge about preventive Ways of Bilhariziasis
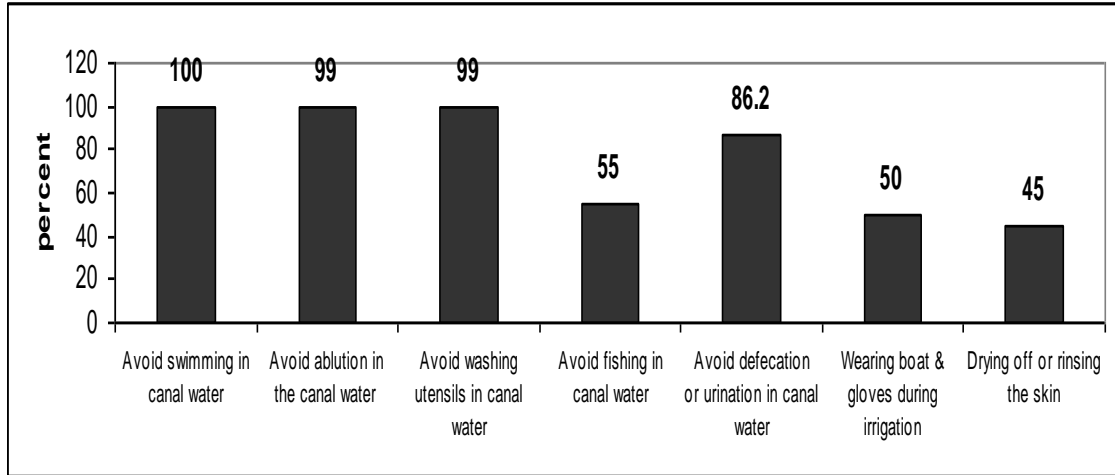
Figure (10) showed that all nurses responded that avoid swimming in canal water prevent bilhariziasis infection while 45% of them said that Drying off or rinsing the skin after using canal water prevent infection.

Table (26):   Frequency distribution of the nurses' knowledge about life cycle of Bilhariziasis inside the water (n = 80).

Items	Frequency	Percent
Type of water		
Correct	67	83.8
Incorrect	13	16.2
Don't know	0	0
Types of Bilhariziasis eggs		
Correct and complete	10	12.5
Correct but incomplete	48	60
Don't know	22	27.5
Snails needed for mature worms		
Correct	59	73.8
Incorrect	21	26.2
Don't know	0	0
Types of snails (n = 59)		
Correct	25	42.4
Incorrect	34	57.6
Don't know	0	0
Name of snails (n = 59)		
Correct and complete	4	6.8
Correct but in compete	55	93.2
Life-cycle inside the snail		
Correct	38	47.5
Incorrect	42	52.5
Don't know	0	0
Infective agent		
Correct	66	82.5
Incorrect	14	17.5
Don't know	0	0
Infective stage		
Correct	31	38.7
Incorrect	49	61.3
Don't know	0	0

Table (26) illustrated that Majority of the sample (83.8%) correctly mentioned the type of water for Bilhariziasis. As regards (types of Bilhariziasis eggs) around two third (60%) their answers

were correct but incomplete and the minority of the sample (12.5%) their answers were correct and complete.

Seventy three point eight percent of the sample correctly determined that infective stage needs snails to be mature. Regarding types of snails more than half of the sample (57.6%) mentioned types of the snails incorrectly and the rest of the sample (42.4%) their answers were correct. Minority (6.8%) of the nurses who answer correctly (59) listed the names of these snails correctly and complete but the majority of the sample (93.2%) listed the names correctly but incomplete.

Concerning the life-cycle inside the snail, more than half of the sample (52.5%) determined the stage incorrectly. As regards the infective agent of Bilhariziasis the majority of the sample (82.5%) correctly mentioned it but the rest of the sample (17.5%) mentioned it incorrectly. Regarding, the infective period, around two thirds of the sample (61.3%) mentioned it incorrectly and the rest of the sample (38.8%) responds with correct answer.

Table (27): Frequency distribution of the nurses' knowledge about life cycle of Bilhariziasis inside the human body and its control methods (n=80).

Items	Frequency	Percent
Entry through the human body		
Correct	73	91.3
Incorrect	7	8.8
Don't know	0	0
Place of living bilhariziasis worm in human body		
Correct and complete	19	23.8
Correct but in complete	60	75
Incorrect	1	1.3
Period of maturation of bilhariziasis worm inside human body		
Correct and complete	4	5
Correct but incomplete	41	51.3
Incorrect	35	43.8
Life span of bilhariziasis worm inside human body		
Correct	42	52.5
Incorrect	38	47.5
Don't know	0	0
Causative agents through defecation or urination		
Correct and complete	38	47.5
Correct but incomplete	42	52.5
Don't know	0	0
Control methods of bilhariziasis		
Correct and complete	27	33.8
Correct but incomplete	53	66.2
Don't know	0	0

As observed from table (27) the majority of nurses (91.3%) answered correctly and complete about (the entry of bilhariziasis through the human body. Concerning the living place of bilhariziasis worm in human body, less than one third of the sample (23.8%) answered correctly

and complete while 75% of the sample answered correctly but incomplete and only 1.3% of the sample answered incorrectly.

Only 5% of the nurses answered correctly and complete about the period of maturation of bilhariziasis worm inside human body and more than half of the sample (51.3%) respond with correct but incomplete answer while 43.8% answered incorrectly. More than half of the sample (52.5%) answered correctly about (life span of bilhariziasis worm inside the human body) while 47.5% answered incorrectly.

Less than half of the sample (47.5%) answered correctly and complete about (causative agents through defecation or urination) and the rest of the sample (52.5%) respond with correct but incomplete answer. Regards the methods of control, 3.8% answered correctly and complete while 66.2% answered correctly but incomplete.

Table (28): Frequency distribution of the nurses' knowledge about iron deficiency anaemia as a complication of Bilhariziasis (n = 80).

Items	Frequency	Percent
Causes of iron deficiency anaemia		
Correct	62	77.5
Incorrect	18	25.5
Don't know	0	0
Symptoms of iron deficiency anaemia		
Correct and complete	25	31.2
Correct but incomplete	55	68.8
Don't know	0	0
Types of food that contain iron		
Correct and complete	17	21.2
Correct but incomplete	63	78.8
Don't know	0	0

Table (28) illustrated that 77.5% of nurses determined causes of iron deficiency anemia correctly while the rest of them determined the causes incorrectly. In relation to nurse's knowledge about symptoms of iron deficiency anemia, 68.8% of nurses respond with correct but incomplete answer while the rest them respond with correct and complete answer.

As regards types of food that contain Iron more than three quarters of the sample (78.8%) respond with correct but incomplete answer while 21.2% responded with correct and complete answer.

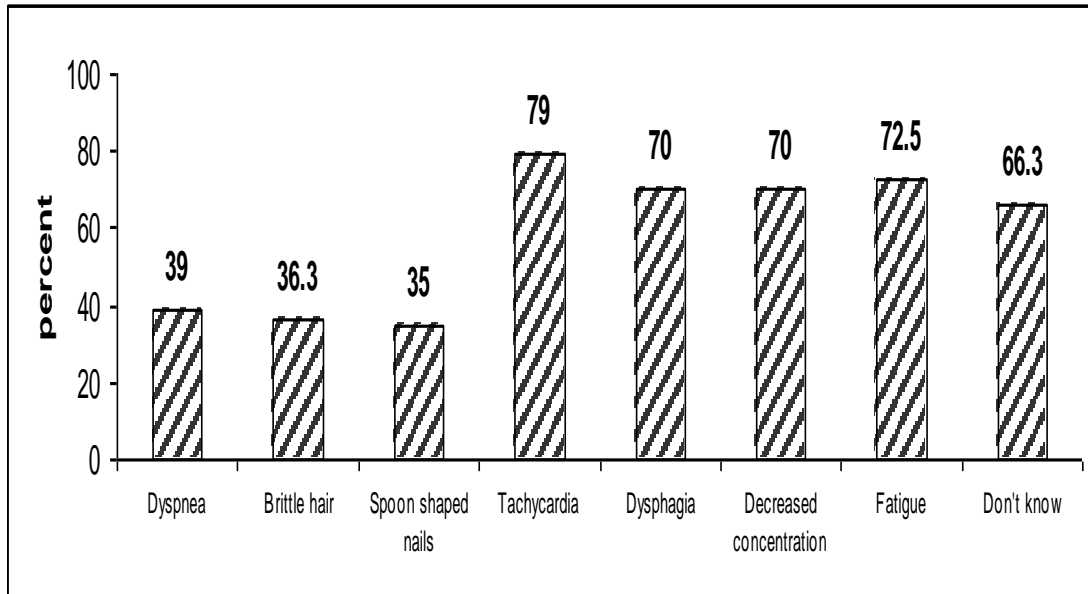**Figure (11): nurses' knowledge about symptoms of iron deficiency anaemia**

Figure (11) showed that more than three quarters of the nurses (79%) said that Tachy cardia is one of symptoms of iron deficiency anaemia and 35% said that spoon shaped nails is a symptom.

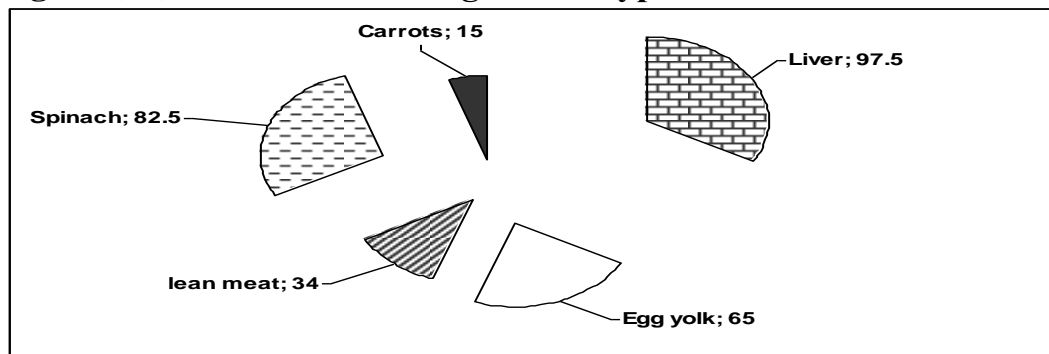**Figure (12): Nurses' knowledge of the types of food that contains iron**

Figure (12) showed that majority of the nurses (97.5%) said that liver is one of essential food that contains iron while only 15% of them said that carrots.

Table (29): Frequency distribution of the nurses' knowledge about patient hepatosplenomegaly (n = 80).

Items	Frequency	Percent
Early manifested of hepatospleenomegaly		
Correct	27	33.8
Incorrect	53	66.2
Don't know	0	0
Define Ascites		
Correct	43	53.8
Incorrect	37	46.2
Don't know	0	0
Advises to client with hepatosplenomegaly		
Correct and complete	16	20
Correct but incomplete	58	72.5
Don't know	6	7.5
Advises to client with ascites		
Correct and complete	23	29
Correct but incomplete	50	62
Don't know	7	9
Advises to client with esophageal varices		
Correct and complete	21	26
Correct but incomplete	55	69
Don't know	4	5

Table (29) illustrated that about two thirds of the sample (66.2%) incorrectly determined where hepatosplenomegaly manifested early in infected adult or children while 33.8% of the sample correctly determined that hepatosplenomegaly manifested early in infected children.

As regards definition of ascites, 53.8% correctly mentioned it, while the rest of the sample (46.2%) mentioned it incorrectly. Concerning advises to clients, it was observed that 29% of the sample answered correctly and completely about (advises to client with ascites) and nurses who answered correctly but incomplete about advises to client with (hepatoplenomegaly, esophageal varices and ascites) were 79%, 72.5% and 62% respectively. While the nurses who didn't know the advises about (Ascites, hepatoslenomegaly and esophageal varices) were 9%, 7.5% and 5% respectively.

Table (30): Frequency distribution of the nurses' knowledge about methods of diagnosis and treatment for bilhariziasis (n = 80).

Items	Frequency	Percent
Bilharizial analysis and diagnosis (General)		
Correct and complete	55	68.7
Correct but incomplete	25	31.3
Don't know	0	0
Bilharizial analysis and diagnosis (Health Centre)		
One exam	59	73.8
Two exams	21	26.2
More than two exams	0	0
Drug of Bilhariziasis		
Correct	45	56.3
Incorrect	35	43.8
Don't know	0	0
Is there side effect of drug used?		
Correct	76	95
Incorrect	4	5
Don't know	0	0
Side effects of drug (n = 76)		
Correct and complete	20	26.3
Correct but incomplete	56	73.7
Do you explain these side effects to client? (n=76)		
Always	24	31.6
Never	52	68.4
Sometimes	0	0
Period required to repeat examination after taking the drug		
Correct	24	30
Incorrect	56	70
Don't know	0	0

As seen in the above table, more than two thirds of the sample (68.7%) determined general methods of analysis and diagnosis for schistosomiasis correctly and complete while the rest of the sample (31.3%) answered correctly but incomplete.

Regarding the analysis and diagnosis inside the health center for schistosomiasis, 73.8% of nurses stated that there is one kind of examination for diagnosis of schistosomiasis in their health centers while only 26.2% of nurses that represent nurses from one health centre stated that there is two kinds of examinations for diagnosis.

As regards drug used for treatment of Bilhariziasis in health centers, more than half of the sample (56.3%) responded with correct answer while the rest of nurses (43.8%) responded with incorrect answer. Concerning the side effects of the drug used. Majority of nurses (95%) correctly determined that there is side effect of the drug and only 5% of the nurses answered incorrectly. It was noticed that 73.7% of nurses determined the side effects of drug correctly but incomplete while the rest of the sample (26.3%) respond with correct and complete answer.

It was observed that 68.4% out of 76 nurse don't explain side effects of drug to client while 31.6% explain these side effects to client. As regards period required to repeat examination after taking Bilhariziasis drug, more than one third of the sample (30%) respond with correct answer and 70% of nurses responded with incorrect answer.

Figure (13): Side effects of Bilharizial drug as mentioned by Nurses
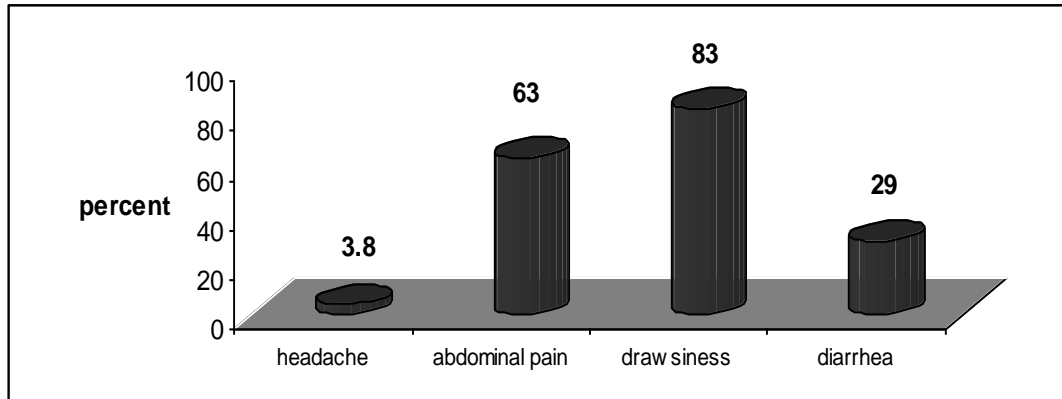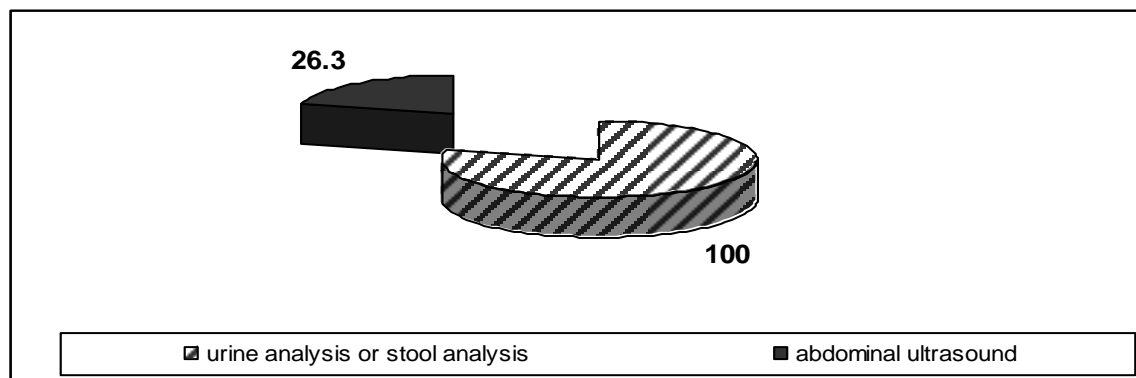

Figure (13) showed that more than three quarters of the nurses (83%) stated that Bilharizial drugs causes drowsiness while only (3.8%) of them stated that the drug cases headache.

Figure (14): Bilharizial analysis and diagnosis (Health centre)

The above figure showed that all four health centres of our study use only urine analysis or stool analysis for bilharizial diagnosis while only one health centre that represented by 26.3% of the nurses sample which use abdominal ultrasound.

Fig. (15): Nurses' preventive role toward Bilhariziasis.

Health education given to patient with Bilhariziasis
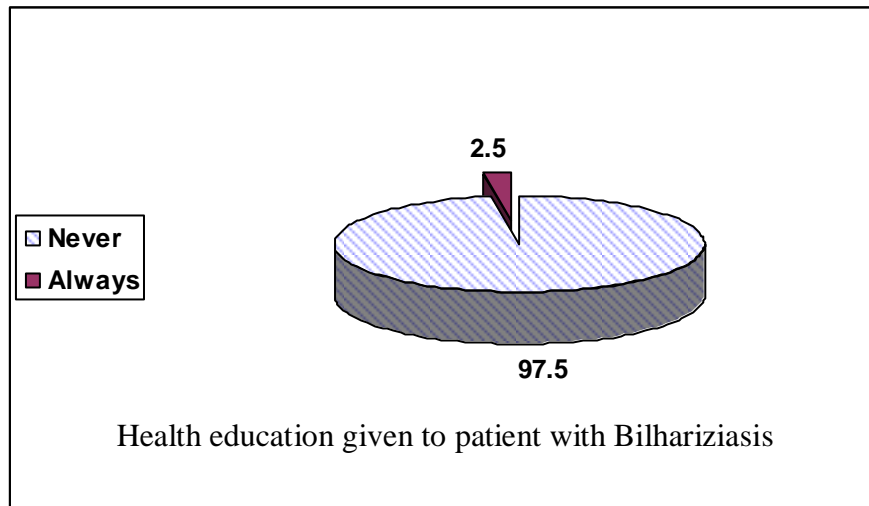
The above figure showed that, the majority of nurses (97.5%) did not participate in health education to patients with bilhariziasis while only 2.5% of them were giving health education.

Table (31): Frequency Distribution of the Nurses' Practical Role regarding Bilhariziasis and its Complications (n = 80).

Items	Frequency	Percent
Giving drug of bilhariziasis		
Always	4	5
Never	76	95
Sometimes	0	0
Calculating the Total dose of drug of bilhariziasi		
Correct	68	85
Incorrect	12	15
Don't know	0	0
Registration of clients		
Always	6	7.5
Never	74	92.5
Sometimes	0	0
Follow up		
Always	28	35
Never	52	65
Sometimes	0	0
Referral to other health facilities		
Yes	25	31.2
No	55	68.8
Don't know	0	0

Table (31) illustrated that majority of the sample (95%) don't give drug of bilhariziasis to client and only 5% of them give the drug. Regarding the calculation of the total dose of the bilhariziasis drug, 85% of nurses knew how to calculate the total dose of the drug.

Regarding registration of clients, the majority of the sample (92.5%) didn't make registration. Concerning follow up, about two thirds of the sample (65%) didn't follow up the client. But the rest of the sample (35%) follows up the clients after treatment. It was noticed that there was referral system in one heath centre that represented by 31.2% of the sample and there wasn't referral system to the other health care facilities that represented by 68.8% of the sample.

Table (32): Nurses' knowledge according to Socio-demographic data.

Demographic data	Complete knowledge N = 35		Incomplete knowledge N = 45		Person X^2	P
	Frequency	Percent	Frequency	Percent		
Social status						
Married	32	91.4	44	97.8	1.67	>0.05
Not married	3	8.6	1	2.2		
Educational level						
Diploma (secondary education)	29	82.9	41	91.1		
Bachelor of nursing.	1	2.9	0	0	10.979	<0.05
Diploma with one year	5	14.3	0	0		
specialty.	0	0	4	8.9		
Nursing job						
Nursing supervisor	5	14.3	1	2.2	4.130	<0.05
Nurse	30	85.7	44	97.8		
Training courses						
Yes	17	48.6	31	68.9	3.386	>0.05
No	18	51.4	14	13.1		

Table (32) showed that the majority (97.8%) of the nurses who had incomplete knowledge were married while only (2.2%) of them weren't married, also the majority of the nurses who had complete knowledge (91.4%) were married while only (8.6%) of them weren't married with out statistical significant difference.

Levels of education that 91.1%o f the nurses with incomplete knowledge have got diploma (3 years) while 82.9% of the nurses with complete knowledge were diploma nurses (3 years) while only (2.9%) of them were diploma (secondary education), statistical significant difference was detected.

The majority of nurses with incomplete knowledge (97.8%) were nurses while only (2.2%) were nursing supervisors. Statistical significant difference was detected. Regarding training courses (68.9%) of the nurses with incomplete knowledge had training courses and (51.4%) of the nurses with complete knowledge had not got any of training courses.

Table (33): Nurses' knowledge according to age and experience.

Variables	Complete knowledge N = 35		Incomplete knowledge N = 45		t	P
	$\overline{X}$	SD	$\overline{X}$	SD		
Age	29.457	8.3114	34.48	10.699	- 2.294	<0.05
Experience	10.60	8.842	15.466	10.1143	- 2.367	<0.05

Table (33) revealed that the mean age of nurses who had complete knowledge was 29.45 $\pm$ 8.311 while the mean age of the nurses who had incomplete knowledge was 34.48 $\pm$ 10.699. Concerning experience it was found that the mean experience of the nurses who had complete knowledge was 10.60 $\pm$ 8.842 while the mean experience of the nurses who had incomplete knowledge was 15.46 $\pm$ 10.114. There were negative relationships concerning nurses age and experiences with the nurses' knowledge (t= −2.294 and t= −2.367 respectively) with statistically significant differences.