Results

The results of this study were presented in (23) tables, and (12) figures, they included the following:

Part (I): Socio-demographic characteristics of studied group (table 1).

Part (II): Housing condition of the studied group (table 2).

Part (III): Knowledge of the studied group regarding to avian influenza (tables 3:7)

Part (IV): Attitude of the studied group regarding to avian influenza (table 8; fig.1)

Part (VI): Knowledge about practice of the studied group regarding to avian influenza (tables 9:11; figs.2;12)

Part (VII): Relation between breeding of birds& KAP of the studied group (table 12)

Part (VIII): Relation between (socio-demographic characteristics& housing condition)& KAP of studied group (tables 13:18)

Part (IX): Correlation between knowledge and both attitude and practice among studied group (tables 19:20)

Part (X): Regression analysis (tables 21:23)

Table (1): Number & percentage of distribution of studied group regarding to socio-demographic characteristics

Socio-demographic Characteristics	No	%
• **Age in years** :		
< 20	41	8.2
20- < 30	87	17.4
30- < 40	81	16.2
40 +	291	58.2
• **Education level:**		
Illiterate	231	46.2
Basic education	59	11.8
Secondary education	134	26.8
University	76	15.2
• **Occupation:**		
Working	112	22.4
Housewife	388	77.6
• **Family size:**		
< 3	44	8.8
3- < 5	187	37.4
5 +	269	53.8
• **Income/Capita / (L.E.):**		
100- < 200	13	2.6
200- < 300	90	18.0
300- < 400	171	34.2
400 +	226	45.2

This table shows that less than three fifths (58.2%) of the studied group aged ≥ 40 years, 46.2% of them were illiterate. Of the 500 housewives interviewed only 22.4% were working and more than three quarters (77.6%) of them don't work. More than half (53.8%) of interviewed housewives had a big family size with 5 members and more. Less than half (45.2%) of the studied group had an income 400 or more L.E./month for each member.

Table (2): Number & percentage distribution of studied group regarding to housing condition.

Housing	No	%
• **No. of rooms:**		
One	62	12.4
Two	208	41.6
Three +	230	46.0
• **Separated kitchen**:		
Yes	413	82.6
No	87	17.4
• **Permanent sanitary water supply:**		
Yes	486	97.2
No	14	2.8
• **Source of sanitary water supply:**		
Piped system	463	95.3
Deep wells	23	4.7
Shallow wells	0	0.0
• **Ventilation system**:		
Yes	490	98.0
No	10	2.0
• **Sanitary sewage disposal**:		
Yes	416	83.2
No	84	16.8
• **Kind of sewage disposal:**		
Municipal one	101	24.3
Self building one	28	6.7
Cesspit	251	60.3
Canal drainage	36	8.7

This table shows that the highest percentage of the studied group had a house with 3 rooms or more (46%). The majority of them had a separated kitchen (82.6%), and most of them (97.2%) of the studied group had a permanent sanitary water supply. The main source of this permanent sanitary water supply was the piped system for most of them (95.3%). Sanitary sewage disposal was present for majority of them (83.2%), the main kind of this sanitary sewage disposal was the cesspit (60.3%).

Table (3): Number & percentage distribution of knowledge about disease among studied group.

Knowledge questions	No	%
• **Did you hear about bird flu?**		
Yes	500	100
No	0	0
• **What is the source of your knowledge**?		
Radio/TV	454	90.8
News papers	2	0.4
Lectures	11	2.2
Health units	12	2.4
Health visitors	12	2.4
Friends	7	1.4
Others	2	0.4
• **Which group is at risk to catch this disease?**		
Complete answer	272	54.4
Incomplete answer	167	33.4
Negative answer (I don't know)	61	12.2
• **What are the manifestations of the disease in birds?**		
Complete answer	326	65.2
Incomplete answer	101	20.2
Negative answer(I do not know)	73	14.6
• **What are the manifestations of the disease in humans**?		
Complete answer	276	55.2
Incomplete answer	135	27
Negative answer(I do not know)	89	17.8
• **Is there a vaccine against the disease for humans**?		
Yes	194	38.8
No	306	61.2
• **Is there a vaccine against the disease for birds?**		
Yes	415	83
No	85	17

Table(3) shows that all the studied group (100%) heard about avian influenza, the main source of their knowledge were radio and T.V (90.8%), followed by a minority representing equal percentage for both health unit and health visitors (2.4%) and the least source of knowledge was newspapers (0.4%). More than half (54.4%) of the interviewed housewives knew about the group at risk to catch the disease. Almost two thirds (65.2%) of the interviewed housewives knew all manifestations of the disease in birds, and 55.2% knew all manifestations of the disease in humans.

Slightly more than three fifths (61.2%) of the interviewed housewives answered no when asked about the presence of a vaccine against the disease for human. And (83%) answered "yes" when asked about the presence of a vaccine against the disease for birds.

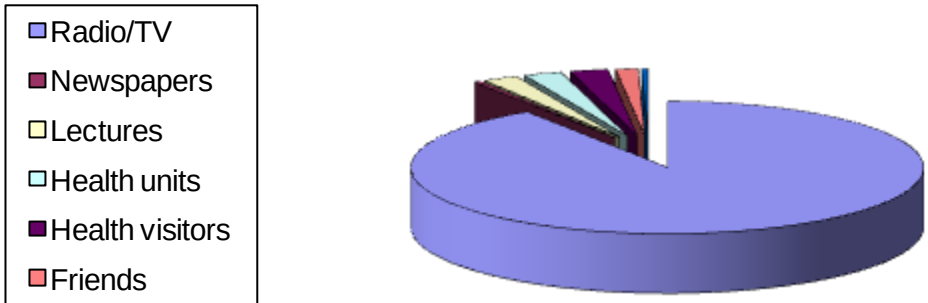


Fig.1: (source of knowledge)

Table (4): Number & percentage distribution of knowledge about disease transmission among studied group.

Knowledge Questions	No	%
• **What are the methods of transmission from birds to humans?**		
Complete answer	322	64.4
Incomplete answer	139	27.8
Negative answer(I do not know)	39	7.8
• **Does the disease transmit by drinking water contaminated with diseased birds' excreta?**		
Yes	180	36
No	320	64
• **Does the disease transmit from human to human?**		
Yes	290	58
No	210	42

This table shows that 64.4% of participants answered a complete answer on the question of the methods of disease transmission, 36% of them believe that the disease can be transmitted by drinking water contaminated with diseased birds excreta, and 58% of them believe that the disease can be transmitted from person to person.

Table (5): Number & percentage distribution of knowledge about disease among studied group.

Knowledge questions	No	%
• **Did you hear about bird flu?**		
Yes	500	100
No	0	0.0
• **What is the source of your knowledge?**		
Radio/TV	454	90.8
News papers	2	0.4
Lectures	11	2.2
Health units	12	2.4
Health visitors	12	2.4
Friends	7	1.4
Others	2	0.4
• **Who are the group at risk to catch this disease**?		
Working with poultry slaughtering.	375	75.0
Workers in poultry farms.	395	79.0
Household poultry.	367	73.4
Veterinarians.	295	59.0
Workers in laboratories interested in AI.	292	58.4
Wild hunting.	295	59.0
All of above*	272	54.4
I don't know.	61	12.2
• **Is there a vaccine against the disease for human?**		
Yes	194	38.8
No*	306	61.2
• **Is there a vaccine against the disease for birds?**		
Yes*	415	83
No	85	17

Note: * Correct answers

This table demonstrates that the main source of knowledge was radio/TV (90.8%). The main group at risk to catch avian influenza were

workers in poultry farms (79%), followed by workers with poultry slaughtering (75%). Slightly more than three fifths (61.2%) of the interviewed housewives answered no when asked about the presence of a vaccine against the disease for humans. And (83%) answered "yes" when asked about the presence of a vaccine against the disease for birds.

Table (6): Number & percentage distribution of knowledge about disease transmission among studied group.

Knowledge Questions	No	%
• **What are the methods of transmission from birds to humans?**		
Direct contact with live birds.	447	89.4
Contact with or inhalation of birds excreta.	383	76.6
Eating semi cooked (egg & poultry).	379	75.8
Contaminated clothes & shoes with birds excreta in farms & markets.	325	65.0
Contact with contaminated surfaces or materials such as "dirt, cages, water, feed, equipment, and vehicles".	330	66.0
Mice, dogs and cats.	333	66.6
Migratory birds.	360	72.0
All of above *.	322	64.4
I don't know.	39	7.8
• **Does the disease transmit by drinking water contaminated with diseased birds excreta**?		
Yes	180	36.0
No*	320	64.0
• **Does the disease transmit from human to human?**		
Yes	290	58.0
No*	210	42.0

Note : * Correct answers

This table demonstrates that the main methods of transmission of the disease from birds to humans were direct contact with live birds (89.4%), followed by contact with or inhalation of birds excreta (76.6%). The table shows also that 64% of the studied group don't believe that the disease can be transmitted by drinking water contaminated with diseased birds excreta, and 58% of them believe that the disease can be transmitted from human to human.

Table (7): Number & percentage distribution of knowledge about disease manifestations among studied group.

Knowledge Questions	No	%
• **What are the manifestations of the disease in birds?**		
Rest, ruffled feathers & loss of appetite.	362	72.4
Decrease egg production.	343	68.6
Eggs without cover.	347	69.4
Distention in head, joint and comb.	351	70.2
Cyanotic comb.	371	74.2
Secretions from nose.	335	67.0
Diarrhea.	340	68.0
All of above*.	326	65.2
I don't know.	37	14.6
• **What are the manifestations of the disease in humans**?		
Sore throat.	322	64.4
Chest pain.	316	63.2
Fever.	393	78.6
Muscle pain.	290	58.0
Cough.	313	62.6
Headache.	322	64.4
Dyspnea.	280	56.0
Eye inflammation.	362	72.4
All of above*.	276	55.2
I don’t know.	89	17.8

Note: * Correct answer

This table demonstrates disease manifestations; cyanotic comb (74.2%), and rest & ruffled feathers and loss of appetite (72.4 %) were the main signs and symptoms of infected birds as mentioned by the studied group, however fever (78.6%) and eye inflammation (72.4%) were the main signs and symptoms of infected human as reported by the interviewed housewives.

Table (8): Number & percentage distribution of attitude among the studied group.

Attitude Questions	No.	%
• **Do you think that the disease is serious?**		
Yes	397	79.4
No	103	20.6
• **Do you afraid from eating poultry?**		
Yes	149	29.8
No	351	70.2
• **Do you afraid from eating eggs ?**		
Yes	104	20.8
No	396	79.2
• **Do you agree that we should stop bird breeding to prevent the disease**		
Yes	167	33.4
No	333	66.6
• **Do you prefer stopping bird selling?**		
Yes	184	36.8
No	316	63.2
• **Do you like following up the disease news?**		
Yes	328	65.6
No	172	34.4
• **Do you think that the taken precautions by authorities are:-**		
Not enough	130	26.0
Enough	263	52.6
More than enough	107	21.4
• **Do you like knowing the preventive measures for this disease?**		
Yes	408	81.6
No	92	18.4

Table (8) (cont.):

Attitude Questions	No.	%
• **If there is a vaccine, Do you prefer to take it ?**		
Yes	458	91.6
No	42	84.0
• **If there is a case of bird flu, do you think that you should notify?**		
Yes	389	77.8
No	111	22.2
• **Do you agree that the disease will be pandemic**		
Yes	227	45.4
No	273	54.6

Table (8) shows that 79.4% of housewives under study think that the disease is serious, 70.2% don't think that eating poultry can transmit the disease, 66.6 % think that eating egg can't transmit the disease. 63.2% don't think that they should stop bird selling, 65.6% think that they should follow up the disease news, (81.6%) think that they should know the preventive measures, 52.6% think that the precautions taken by authorities are enough, if asking the studied housewives about human vaccine against the disease, most of them (91.6%) prefer to take it, more than three quarters of studied group (77.8%) think that they should notify if there is a case of bird flu, and 45.4% of them think that the disease will be pandemic.

Table (9): Number & percentage distribution of birds breeding among the studied group.

Practice Questions	No.	%
• **Do you breed birds in your house?**		
Yes	432	86.4
No	68	13.6
• **What kind of these birds ?**		
Hen	67	15.5
Duck	30	6.9
Geese	4	0.9
Pigeon	3	0.7
More than one kind (mixed)	328	75.9
• **If more than one kind, do you put all kinds in the same place?**		
Yes	214	65.2
No	114	34.8
• **What is the source of your birds?**		
From the seller	114	26.4
Home breeding	228	52.8
Bird market	57	13.2
From another household breeder	33	7.6
• **Where do you breed your birds**?		
Separated place away from the house	115	26.6
Over the roof of the house	269	62.3
Inside the balcony	3	0.7
At the hall of the house	15	3.5
In one room in the house	30	6.9
• **Is the breeding place covered?**		
Yes	212	49.1
No	220	50.9

This table demonstrates that 86.4 % of the studied group breed birds in their houses, 75.9% of the breeders breed more than one kind of birds, 65.2% of them put all kinds together. The main source of these birds was home breeding (52.8%), 62.3% of the breeders breed their birds over the roof of their houses, and 50.9% of them breed in uncovered places.

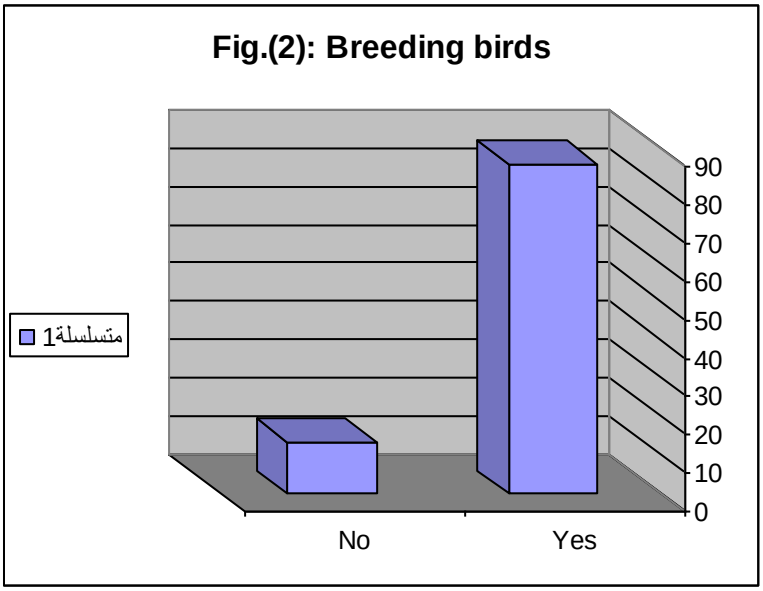


Fig.(2): Breeding birds
متسلسلة1
90
80
70
60
50
40
30
20
10
0
No
Yes

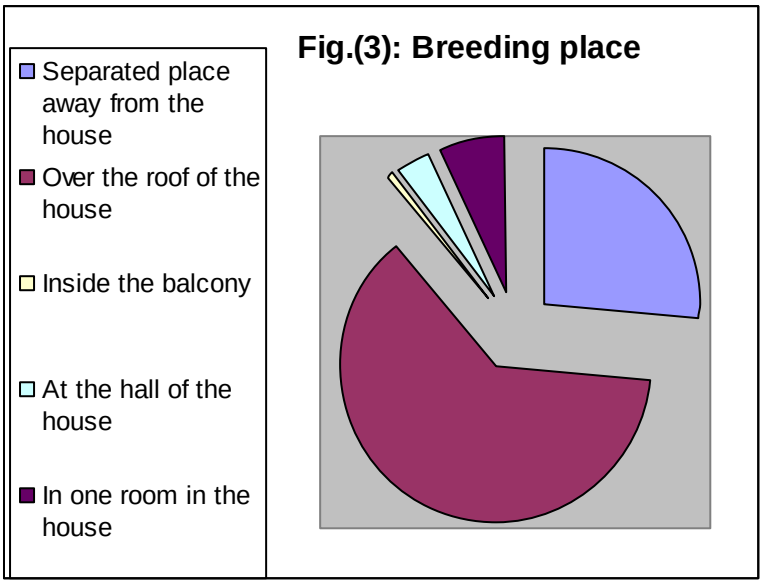


Fig.(3): Breeding place
Separated place away from the house
Over the roof of the house
Inside the balcony
At the hall of the house
In one room in the house

Table (10): Number & percentage distribution of knowledge about practices regarding to avian influenza among the studied group.

practice Questions	No.	%
• **Do you stop eating eggs because you are afraid of the disease?**		
Yes	446	89.2
No	54	10.8
• **Do you stop eating poultry because you are afraid of the disease?**		
Yes	391	78.2
No	109	21.8
• **Do you touch birds with bared hands ?**		
Yes	71	14.2
No	429	85.8
• **During poultry preparation you:**		
Separate uncooked meat from other cooked food	78	15.6
Do not use the knife used in preparing the poultry in preparing the other food	67	13.4
Do not touch uncooked poultry then the cooked food without hand washing	92	18.4
Don't put the cooked poultry on the pot on which you put the uncooked poultry without washing it well	73	14.6
Don't use uncooked or semi cooked egg in preparing the food	114	22.8
Hand washing continuously	90	18.0
Cook poultry & egg well	132	26.4
Washing eggs before cooking them	82	16.4
All of the above	245	49.0
Nothing from the above	34	6.8
• **Do you change your shoes & clothes after caring of your birds ?**		
Yes	199	46.1
No	233	53.9
• **Do you wear a mask during dealing with your birds?**		
Yes	116	26.9
No	316	73.1
• **Do you wear gloves during dealing with your birds?**		
Yes	98	22.7
No	334	77.3

Table (10) demonstrates that 89.2% of the housewives under study stopped eating eggs and 78.2% stopped eating poultry because of they are afraid from the disease, the majority (85.8%)of them don't touch birds with bared hands. The table shows also that 49% of the participants follow all healthy practices in preparing poultry while 6.8% of them don't follow any of these precautions, 53.9% of the breeders don't change their clothes and shoes after caring of their birds, 73.1% of them don't use masks when they are dealing with their birds, and 77.3% of them don't wear gloves.

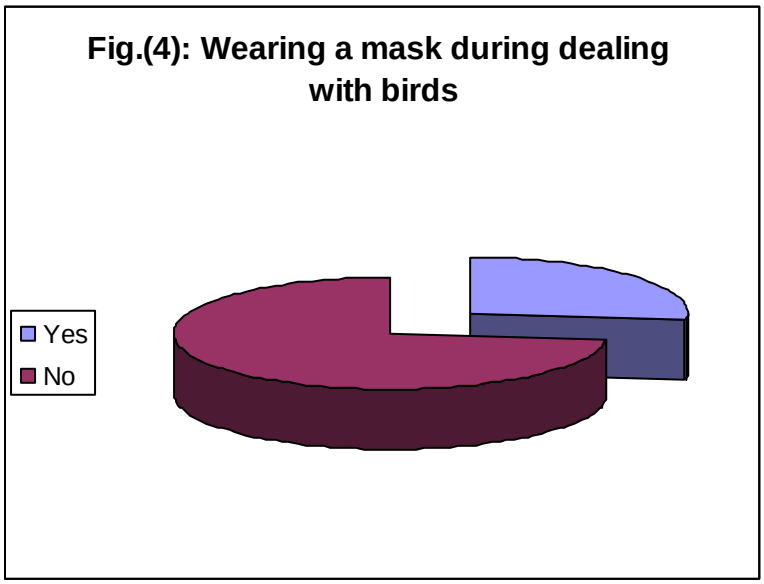


Fig.(4): Wearing a mask during dealing with birds
Yes
No


Fig.(5): Wearing gloves during dealing with birds
Yes
No

Table (11): Number & percentage distribution of slaughtering practices among the studied group.

Practice Questions	No.	%
• **Do you slaughter & clean your birds by yourself ?**		
Yes	412	82.4
No	88	17.6
• **Do you wear gloves during slaughtering ?**		
Yes	60	14.6
No	352	85.4
• **Do you wear a mask during slaughtering ?**		
Yes	55	13.3
No	357	86.7
• **Do you wash hands after slaughtering ?**		
Yes	411	99.8
No	1	0.2
• **If yes, how?**		
With water	73	17.8
With water & soap	320	77.8
With disinfectant	18	4.4
• **How can you dispose of feathers after cleaning ?**		
Throwing them on the street	37	8.9
Throwing them in the canal	34	8.3
Putting them in baskets	302	73.3
Putting them in closed sac & burring them	39	9.5
• **Did you vaccinate your birds in the veterinary unit?**		
Yes	232	53.7
No	200	46.3
• **Did you have any sick/dead birds ?**		
Yes	189	43.8
No	243	56.2
• **How did you deal with a sick/dead birds ?**		
Throwing them in the canal	63	33.3
Throwing them on the street	34	17.9
Putting them in the baskets	44	23.4
Putting them in closed sac & burring them	48	25.4
• **How did you deal with the rest of the birds?**		
Slaughtering & eating them	106	56.1
Slaughtering & burring them	29	15.3
Selling them	5	2.7
Don't do any thing	42	22.2
Throwing them in the canal	7	3.7
Throwing them in the street	0	0.0
Notifying authorities	0	0.0

Table (11) demonstrates that 82.4% of the participant are slaughtering and cleaning their birds by themselves, 14.6% of them wear gloves during slaughtering and 13.3% of them wear masks, 99.8% of them are washing their hands after slaughtering, 77.8% of them wash their hands with water and soap and 4.4% of them are using disinfectants. The most common method used by 73.3% to dispose of the feathers after cleaning was putting them in the baskets, and 53.7% of the breeders vaccinate their birds in the veterinary unit. The table shows also that 43.8% of the breeders had sick or dead birds, 33.3% of them are throwing them in the canal, 56.1% of them are slaughtering and eating the rest of birds.

Fig. (6): Slaughtering & cleaningbirds by yourself

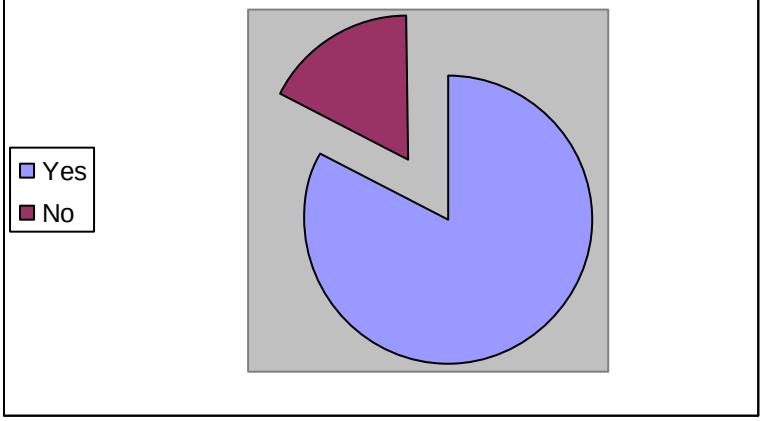
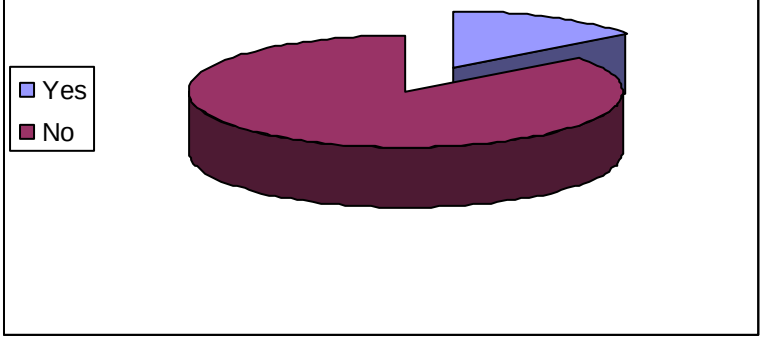


Fig. (7): Wearing gloves during slaughtering



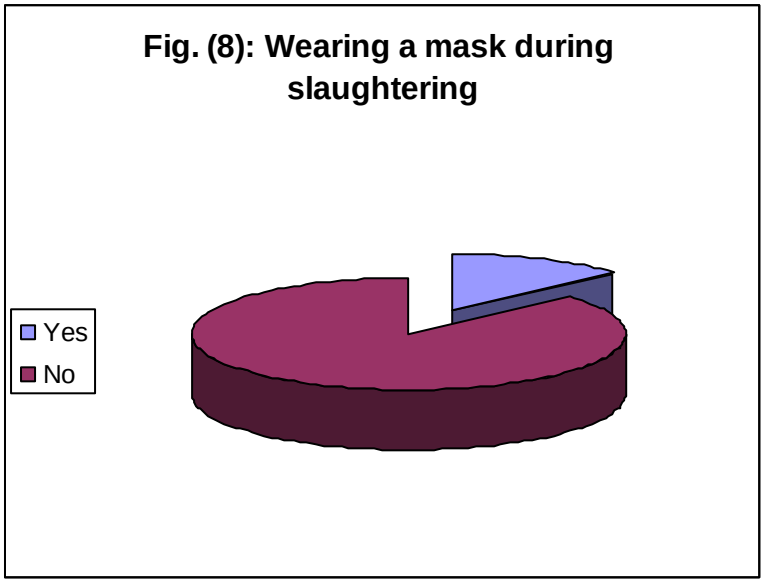


Fig. (8): Wearing a mask during slaughtering
Yes
No

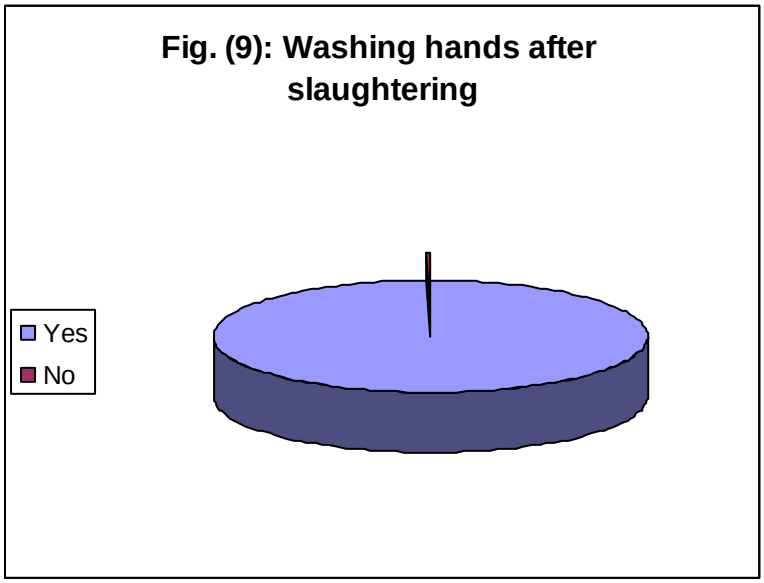


Fig. (9): Washing hands after slaughtering
Yes
No

Fig. (10): Methods of washing hands after slaughtering

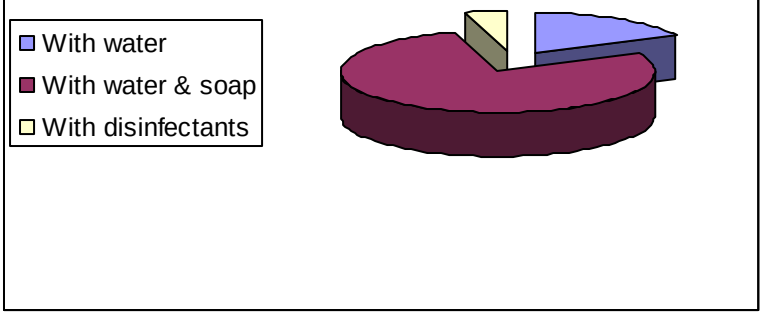
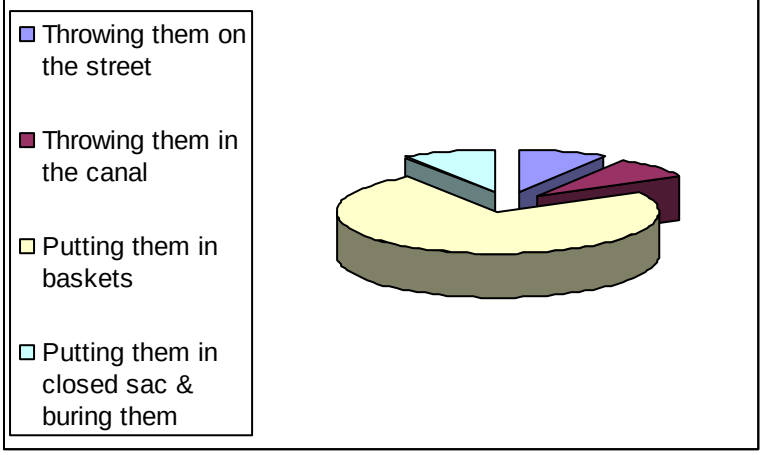


Fig. (11): Methods of disposing of feathers after cleaning



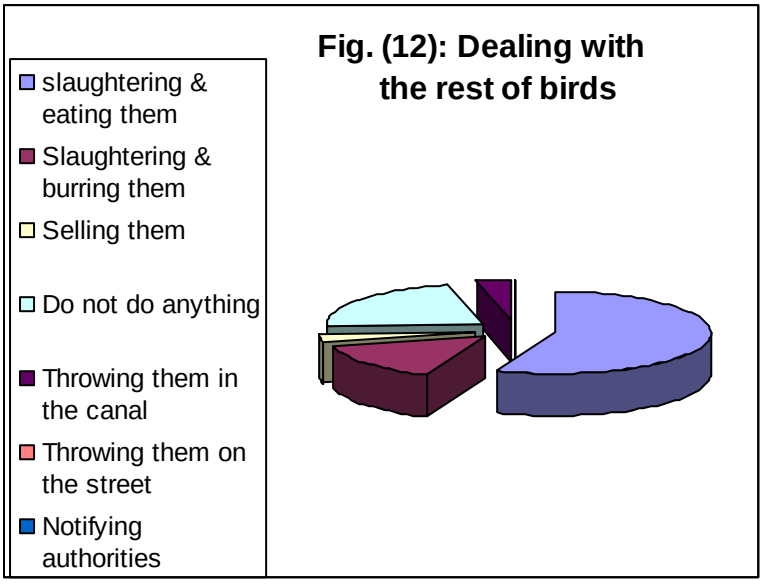


Fig. (12): Dealing with the rest of birds
slaughtering & eating them
Slaughtering & burring them
Selling them
Do not do anything
Throwing them in the canal
Throwing them on the street
Notifying authorities

Table (12): Relation between breeding of birds & KAP of studied group.

KAP	Breeders (n = 432)		Non breeders (n = 68)		Total (n = 500)		X^2	P-value
	No.	%	No.	%	No.	%		
Knowledge:								
Unsatisfactory	211	48.8	28	41.2	239	47.8	1.38	>0.05
Satisfactory	221	51.2	40	58.8	261	52.2		
Attitude:								
Negative	302	69.9	47	69.1	349	69.8	0.02	>0.05
Positive	130	30.1	21	30.9	151	30.2		
Practice:								
Poor	372	86.1	68	100	440	88	10.73	<0.001
Good	60	13.9	0	0	60	12		

This table demonstrates that more than half of the breeders and non breeders had satisfactory knowledge (51.2% & 58.8% respectively). More than two thirds of them (69.1% & 69.8% respectively) had `negative attitude. The majority of the breeders and all non breeders (86.1% & 100% respectively) had poor practice. This table shows also that there are insignificant relations between breeding birds, and knowledge and attitude, while there is a statistically significant relation between practice and birds breeding.

Table (13): Relation between knowledge & socio-demographic data 0f studied group.

Socio-demographic data	Unsatisfactory (n = 239)		Satisfactory (n= 261)		X^2	P-value
	No.	%	No.	%		
Age:						
< 20	20	8.4	21	8		
20 - < 30	40	16.7	47	18	2.44	>0.05
30 - < 40	45	18.8	36	13.8		
≥ 40	134	56.1	157	60.2		
Education:						
Illiterate	115	48.1	116	44.4		
Basic	26	10.9	33	12.6	5.49	>0.05
Secondary	55	23	79	30.3		
University & above	43	18	33	12.6		
Occupation:						
Working	65	23.4	56	21.5	0.28	>0.05
Housewife	183	76.6	205	78.5		
Family size:						
< 3	23	9.6	21	8		
3 - < 5	96	40.2	91	34.9	2.39	> 0.05
≥ 5	120	50.2	149	57.1		
Income:						
100 - < 200	8	3.3	5	1.9		
200 - < 300	48	20.1	42	16.1	3.15	> 0.05
300 - < 400	75	31.4	96	36.8		
≥ 400	108	45.2	118	45.2		

This table demonstrates no statistically significant relations between knowledge & all socio demographic data of studied group (P>0.05).

Table (14): Relation between knowledge & housing condition among studied group.

Housing	Unsatisfactory (n=239)		Satisfactory (n=261)		X^2	P-value
	No.	%	No.	%		
No. of rooms:						
1	21	8.8	41	15.7		
2	100	41.8	108	41.4	5.56	<0.05
3	118	49.4	112	42.9		
Kitchen:						
Yes	203	84.9	210	80.5	1.74	>0.05
No	36	15.1	51	19.5		
Water:						
Yes	227	95	259	99.2	8.29	<0.001
No	12	5	2	0.8		
Water source:						
Piped system	218	91.6	252	97.3	7.85	<0.001
Deep wells.	20	8.4	7	2.7		
Ventilation:						
Yes	234	97.9	256	98.1	0.02	>0.05
No	5	2.1	5	1.9		
Disposal:						
Yes	192	80.8	224	85.8	2.69	>0.05
No	47	19.7	37	14.2		
Disposal type:						
Municipal	43	22.4	58	25.9		
Self limited	9	4.7	19	8.5	4.29	>0.05
Cesspit	120	62.5	131	58.5		
Canal	20	10.4	16	7.1		
Total knowledge score: ($\overline{X}$ ± SD)	12.26 ± 2.35		16.33 ± 1.63		22.65*	<0.001

*** T-test**

This table demonstrates that there are significant relations between knowledge and number of rooms, the availability of permanent water source and the types of this source (P<0.05).

Table (15): Relation between attitude & socio demographic data of studied group.

Socio-demographic data	Negative attitude (n=349)		Positive attitude (n=151)		X^2	P-value
	No.	%	No.	%		
Age:						
< 20	19	5.4	22	14.6		
20- < 30	48	13.8	39	25.8	32.52	<0.001
30- < 40	52	14.9	29	19.2		
≥ 40	230	65.9	61	40.4		
Education:						
Illiterate	185	53	46	30.5		
Basic	43	12.3	16	10.6	27.41	<0.001
Secondary	80	22.9	54	35.8		
University & above	41	11.7	35	23.2		
Occupation:						
Working	77	22.1	35	23.2	0.08	>0.05
Housewife	272	77.9	116	76.8		
Family size:						
< 3	25	7.2	19	12.6		
3- < 5	129	37	58	38.4	4.5	>0.05
≥ 5	195	55.9	74	49		
Income:						
100- < 200	13	3.7	0	0		
200- < 300	59	16.9	31	20.5	6.53	<0.001
300- < 400	121	34.7	50	33.1		
≥ 400	156	44.7	70	46.4		

This table shows highly significant relations between attitude and socio-demographic data of the studied group except for occupation and family size (P<0.001).

Table (16): Relation between attitude & housing condition among studied group.

Housing	Negative attitude (n=349)		Positive Attitude (n =60)		X^2	P-value
	No.	%	No.	%		
No. of room:						
1	47	13.5	15	9.9		
2	148	42.4	60	39.7	2.12	>0.05
3	154	44.1	76	50.3		
Separate kitchen:						
Yes	282	80.8	131	86.8	2.59	>0.05
No	67	19.2	120	13.2		
Water:						
Yes	340	97.4	146	96.4	0.21	>0.05
No	9	2.6	5	3.3		
Water source:						
Piped system	328	94.3	142	95.3	0.22	>0.05
Deep wells.	20	5.7	4	4.7		
Ventilation:						
Yes	341	97.7	149	98.7	0.50	>0.05
No	8	2.3	2	1.3		
Sewage disposal:						
Yes	301	86.2	115	76.2	7.67	<0.001
No	48	13.8	36	23.8		
Type:						
Municipal	72	23.9	29	25.2		
Self limited	15	5	13	11.3	7.28	>0.05
Cesspit	184	61.1	67	58.3		
Canal	30	10	6	5.2		
Total attitude score ($\overline{X}$ ± SD)	13.07 ± 2.7		18.68 ± 1.07		24.67 *	<0.001

*** T- test.**

This table demonstrates that there is a highly significant relation only between attitude and availability of sewage disposal system among studied group(P<0.001).

Table (17): Relation between practice & socio-demographic data of studied group.

Socio-demographic data	Poor practice (n=440)		Good practice (n =60)		X^2	P-value
	No.	%	No.	%		
Age (in years) :						
< 20	37	8.4	4	6.7		
20- < 30	68	15.5	19	31.7	10.29	<0.05
30 < 40	75	17	6	10		
≥ 40	260	59.1	31	51.7		
Education:						
Illiterate	219	49.8	12	20		
Basic	49	11.1	10	16.7	20.37	<0.001
Secondary	107	24.3	27	45		
University & above	65	14.8	11	18.3		
Occupation:						
Working	90	20.5	22	36.7	7.98	<0.001
Housewife	350	79.5	38	63.3		
Family size:						
< 3	42	9.5	2	3.3		
3- < 5	152	34.5	35	58.3	13.34	<0.001
≥ 5	246	55.9	23	38.3		
Income/capita / L.E.:						
100- < 200	11	2.5	2	3.3		
200- < 300	84	19.1	6	10	3.21	>0.05
300- < 400	150	34.1	21	35		
≥ 400	195	44.3	31	51.7		

This table demonstrates statistically significant relations between practice and socio-demographic data of the studied group except for income.

Table (18): Relation between practice & housing condition among studied group.

Housing	Poor practice (n=440)		Good practice (n =60)		X^2	P-value
	No.	%	No.	%		
No. of rooms:						
1	59	13.4	3	5		
2	191	43.4	17	28.3	12.23	<0.001
3	190	42.2	40	66.7		
Kitchen:						
Yes	362	82.3	51	85	0.27	>0.05
No	78	17.7	9	15		
Water:						
Yes	429	97.5	57	95	1.21	>0.05
No	11	2.5	3	5		
Water source:						
Piped system	417	95	53	91.4	1.29	>0.05
Deep well	22	5	5	8.6		
Ventilation:						
Yes	432	98.2	58	96.7	0.62	>0.05
No	8	1.8	2	3.3		
Sewage disposal:						
Yes	364	82.7	52	86.7	0.59	>0.05
No	76	17.3	8	13.3		
Type:						
Municipal	90	24.7	11	21.2		
Self limited	26	7.1	2	3.8	8.23	<0.05
Cesspit	212	58.2	39	75		
Canal	36	9.9	0	0		
Total practice score: ($\bar{X}$ ± SD)	24.4 ± 6.19		37.97 ± 3.05		16.69*	<0.001

*** T. test**

This table demonstrates significant relations between practice and number of rooms and type of sewage disposal among the studied group (P<0.001 & P<0.05 respectively).

Table (19): Pearson correlation between knowledge and both attitude and practice among studied group.

Parameter	Knowledge	
	R	**P**
Attitude	0.14	<0.001
Practice	0.03	>0.05

There is a statistically significant positive correlation between knowledge and attitude (P<0.001).

Table (20): Pearson correlation between knowledge and both attitude and practice among breeders.

Parameter	Knowledge	
	R	**P**
Attitude	0.17	<0.001
Practice	0.06	>0.05

There is a statistically significant positive correlation between knowledge and attitude (P<0.001).

Table (21): Regression analysis of important risk factors regarding to housing condition and knowledge of studied group.

Risk factors	B	SE	P-value	Odds ratio	95 % CI
No. of rooms	0.38	0.14	<0.001	0.68	0.52-0.89
Water supply	7.17	10.75	>0.05	0.001	0.0-10.74
Water source	1.17	0.47	<0.05	0.31	0.12-0.78

The most important risk factors affecting knowledge of the studied group were number of rooms, followed by water supply source, (OR= 0.68 & 0.31 respectively).

Table (22): Regression analysis of important socio demographic data and housing risk factors affecting attitude of studied group.

Risk Factors	B	SE	P-value	Odds ratio	95 % CI
Age	0.46	0.12	<0.001	0.63	0.49-0.79
Education	0.19	0.09	<0.05	1.2	1.02-1.42
Family income	0.00	0.13	>0.05	0.99	0.78-1.28
Sewage disposal	1.04	0.27	<0.001	2.83	1.68-4.78

The most important risk factors affecting attitude of studied group were sewage disposal, followed by education and then age (OR= 2.83, 1.2 & 0.63 respectively).

Table (23): Regression analysis of socio demographic data & housing risk factors affecting practice of studied group.

Risk factors	B	SE	P-value	Odds ratio	95 % CI
Age	0.001	0.20	>0.05	0.99	0.67-1.48
Education	0.18	0.15	>0.05	1.2	0.89-1.61
Occupation	0.54	0.39	>0.05	0.58	0.27-1.24
Family size	0.57	0.27	<0.05	0.57	0.34-0.96
No. of rooms	0.93	0.28	<0.001	2.54	1.47-4.37
Sewage disposal type	0.04	0.17	>0.05	1.04	0.75-1.46

The most important risk factors were number of rooms followed by family size (OR = 2.54 & 0.57 respectively).