

Avian influenza Knowledge, Attitudes and Practices among a sample of Poultry farm and Bird market workers in Baghdad

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Abstract:

Back ground Avian influenza (AI) is a viral disease of domestic and wild birds. The recent pandemic caused by highly pathogenic AI (H5N1) in domestic poultry is currently rated phase 3 by the World Health Organization on the pandemic alert scale.

Objective: to determine the level of Knowledge, Attitudes and Practices among a sample of Poultry farm and Bird market workers in Baghdad governorate

Methods: A cross sectional study was carried out for a period of five months starting on 1stNovember 2017 till 30 march 2018 in Baghdad governorate

Results: The mean age for poultry farm workers 32.55±9.26 and 31.35±9.81 for Bird market workers highest percentages in the age groups 30-39 and the lowest percentages in the age groups 50-59 and the percentages of the males 45.24 % and females 54.76% and highest percentage had primary school for Poultry farm workers and secondary school degree for Bird market workers respectively, most cases of study sample from rural area regarding duration of work Poultry farm workers had more working hour(76.38%) than Bird market workers (53.33%). Regarding knowledge of study sample both groups had poor knowledge score about source, vehicle and risk groups (i.e. regarding animal to human, Bird to bird, and eating Infected food or drinking infected water as a main source of avian influenza and the wild bird main vehicle for transmission of avian influenza). Responses to other categories such as other modes of transmission, populations at risk, and preventive measures were mixed. The preferred source of information was television for Bird market workers and radio for Poultry farm workers. The current study shows that significant association was found between answers of Poultry farm workers and Bird market workers regarding awareness measures about AI i.e. (See public health staff when get sick & See medical doctor when suspected with avian influenza). Regarding the preventive measure the study sample had good score of practice in which the majority of them (>90%) answer correctly for question (Wash hand & wearing gloves after handling Sick or dead bird) followed by question (Wearing mask during exposure & (>60%)) Avoid contact with sick or dead bird.

Conclusion: The study sample had poor knowledge, acceptable attitude and good practices regarding preventive measures of avian influenza.

Recommendation: By developing and implementing public health policy regarding priorities for educational and promotion strategies and in particular more attention should be given on using preventive approaches in these population

Keywords: Avian influenza, knowledge, poultry, Bird, Iraq

INTRODUCTION:

Highly pathogenic avian influenza (HPAI) is an important public health concern due to its potential to infect humans and cause a human pandemic⁽¹⁾. H5N1 typically persists in colder temperatures and produces outbreaks during the colder months of the year⁽²⁾. Avian influenza (AI) is a viral disease among birds, often associated with no apparent signs of illness. In wild bird populations, AI is caused by multiple subtypes of influenza A virus and has the potential to spread to domestic poultry, leading to large-scale outbreaks. These viruses also have the potential to cross the species barrier and cause subclinical infections or diseases among humans and other mammals.⁽³⁾ which may explain how the virus has resurfaced in summer months in Asia. Wild waterfowl are considered the natural reservoir of all avian influenza A viruses. Most infected birds exhibit no symptoms, even when they are excreting large quantities of infectious virus. These asymptomatic birds act as "silent" reservoirs of the virus, perpetuating its transmission to other birds. Domestic waterfowl (e.g., ducks) may also act as a two-way intermediary in the transmission pathway of avian influenza between wild waterfowl and domestic terrestrial poultry (e.g., chickens). Although usually transmitted from wild birds as a virus of low pathogenicity, it may mutate during replication in domestic poultry and highly pathogenic avian influenza (HPAI) strains may arise⁽⁴⁾. Human influenza pandemics have occurred periodically and will likely continue to occur.⁽⁵⁾ Studies in H5N1 affected areas have shown a direct relation between the handling of dead or sick poultry and the occurrence of human infections, suggesting that infected domestic poultry is a primary source of human H5N1 infection⁽⁶⁾. This study was carried out to determine the level of Knowledge, Attitudes and Practices among a sample of Poultry farms and bird market workers in Baghdad governorate.

METHODOLOGY

Study design

This study is across-sectional study conducted for a period of five months starting on 1stNovember 2017 till 30 march 2018 in Baghdad. The sample was collected by convenient sample was determined through the use of (Epi-Info software) to be 210 workers was equally selected from poultry farm and bird market workers in Baghdad governorate.

The Study Instrument:-

Data was collected using a specially designed questionnaire constructed by the researcher and evaluated by panel of experts. Trying the best to put questions that are related to information of general knowledge (not highly specialized) to meet the level of the lay people. Self-administered questionnaire form was used in conducting the study,

Most of the questions share the following characteristics:

- 1- Request only one response.
- 2- Have (2 or 3) options according to the items.
- 3- Include appropriate response options for every subject

Regarding the Knowledge:

The scale of the three levels was rated on the 2 points (likert respondent scale) it was scored as A scoring of agreed about by assigning a score of (1) for the correct answer (yes) and (0) for the incomplete answer (don't know) and score of (0) for the wrong answer (no).

Number of questions: 21 (Minimum=0, Maximum=21, Medium=10.5)

The medium was calculated for each question and those score below the medium considered (0- <10.5 poor score), (10.5- <21 acceptable score) and (=21 good score)

Regarding attitudes:

A scoring of attitudes divided into three score agreed about by assigning a score of (1) for the answer by (agree), and (0) for the answer by (disagree) .

Number of questions: 7 Minimum = 0, Maximum=7, Medium=3.5

The medium was calculated for each question and those score below the medium (3.5) consider (0- <3,5 poor score), and(3.5-<7 acceptable score). (=7 good score)

Regarding practices:

A scoring of practices agreed about by assigning a score of (1) for the answer by (Yes) and (0) for the answer by (No).

Number of questions: 6 Minimum=0 , Maximum=6, Medium=3

The medium was calculated for each question and those score below the medium considered (0- <3 poor score), “(3- <6 acceptable score) and. (=6 good score)

Statistical analysis

Analysis of data was carried out using the available statistical package of SPSS-24 (Statistical Packages for Social Sciences-version 24). Data were presented in simple measures of frequency, percentage, mean, standard deviation, and range (minimum-maximum values). The significance of difference of different percentages (qualitative data) was tested using Pearson Chi-square test with application of Yate's correction or Fisher Exact test whenever applicable. Statistical significance was considered whenever the P value was equal or less than 0.05.

RESULTS

The mean age for poultry farm workers 32.55±9.26 and 31.35±9.81for bird market workers highest percentages in the age groups 30-39 and the lowest percentages in the age groups 50-59 and the percentages of the males 45.24 % and females 54.76% and highest percentage had primary school for Poultry farm workers and secondary school degree for Bird market workers

respectively, most cases of study sample from rural area regarding duration of work Poultry farm workers had more working hour(76.38%) than bird market workers (53.33%)& the association was found to be statistically significant (table 1) .

Regarding knowledge of study sample about source of avian flu significant association was found between poultry farm workers and bird market workers regarding animal to human , Bird to bird, and eating Infected food or drinking infected water as a main source of avian flu and wild bird main vehicle for transmission of avian flu.(P. value <0.05) .Responses to other categories such as other modes of transmission, populations at risk, and preventive measures were mixed (table 2)

The most common source of information about avian influenza was television for Bird market workers and radio for Poultry farm workers and the association was found to be statistically significant (table 3)

The current study shows that significant association was found between answers of poultry farm workers and Bird market workers regarding attitude about the questions (See public health staff when get sick& See medical doctor when suspected with avian flu) while non significant association regarding other questions .

Regarding practices about preventive measure majority of study sample (>90%)answer correctly for question (Wash hand &wearing gloves after handling Sick or dead bird) followed by question (Wearing mask during exposure (>60%))and the association was found to be statistically non significant (table 4)

The study sample (poultry farm workers and Bird market workers had poor knowledge score ,acceptable attitude score and good practices score and the association was found to be statistically significant .(table 5)

Table1: The distribution of study sample according to demographic variables

		Poultry Farm workers(n=105)		Bird market workers(n=105)		Total		P.V
		No.	%	No.	%	No.	%	
Age	20-29	27	25.71	28	26.67	55	26.19	0.974
	30-39	57	54.29	54	51.43	111	52.86	
	40-49	15	14.29	17	16.19	32	15.24	
	50-59	6	5.71	6	5.71	12	5.71	
	Total	105	100	105	100	210	100	
Gender	male	60	57.14	55	52.38	115	54.76	0.488
	females	45	42.86	50	47.62	95	45.24	
	Total	105	100	105	100	210	100	
Education	illiterate	17	16.19	14	13.33	31	14.76	0.125
	primary	52	49.52	38	36.19	90	42.86	
	secondary	33	31.43	48	45.71	81	38.57	
	college	3	2.86	5	4.76	8	3.81	
	Total	105	100.00	105	100	210	100	
Residence	urban	36	34.29	49	46.67	85	40.48	0.068
	rural	69	65.71	56	53.33	125	59.52	
	Total	105	100	105	100	210	100	
DurationOf work	<10 hour	29	27.62	49	46.67	78	37.14	0.004*
	≥10 hour	76	72.38	56	53.33	132	62.86	
	Total	105	100.00	105	100.00	210	100	

Table 2: knowledge of study sample according to the sources of avian influenza (AI)

Sources of AI		Poultry Farm worker (n=105)		Bird market worker (n=105)		Total		P.V
		No.	%	No.	%	No.	%	
Animal to human	Yes	50	47.62	30	28.57	80	38.10	0.002*
	No	39	37.14	39	37.14	78	37.14	
	Don't No	16	15.24	36	34.29	52	24.76	
Human to human	Yes	0	.00	0	.00	0	.00	0.849
	No	65	61.90	67	63.81	132	62.86	
	Don't No	40	38.10	38	36.19	78	37.14	
Bird to bird	Yes	54	51.43	42	40.38	96	45.93	0.034*
	No	39	37.14	36	34.62	75	35.89	
	Don't No	12	11.43	26	25.00	38	18.18	
Eating uncorked poultry	Yes	40	38.10	49	46.67	89	42.38	0.271
	No	43	40.95	32	30.48	75	35.71	
	Don't No	22	20.95	24	22.86	46	21.90	
Eating Raw eggs	Yes	29	27.62	22	20.95	51	24.29	0.526
	No	45	42.86	50	47.62	95	45.24	
	Don't No	31	29.52	33	31.43	64	30.48	
Eating Infected food Or drinking infected water	Yes	58	55.24	42	40.00	100	47.62	0.031*
	No	8	7.62	5	4.76	13	6.19	
	Don't No	39	37.14	58	55.24	97	46.19	
Touching Dropping of bird	Yes	31	29.52	32	30.48	63	30.00	0.894
	No	11	10.48	9	8.57	20	9.52	
	Don't No	63	60.00	64	60.95	127	60.48	
Vehicle of AF								
Bird	Yes	42	40.00	42	40.00	84	40.00	0.028*
	No	50	47.62	36	34.29	86	40.95	
	Don't No	13	12.38	27	25.71	40	19.05	
Poultry	Yes	50	47.62	50	47.62	100	47.62	0.849
	No	49	46.67	47	44.76	96	45.71	
	Don't No	6	5.71	8	7.62	14	6.67	
Risk groups								
Poultry workers	Yes	53	50.48	58	55.24	111	52.86	0.565
	No	43	40.95	40	38.10	83	39.52	
	Don't No	9	8.57	7	6.67	16	7.62	
Bird market workers	Yes	69	65.71	68	64.76	137	65.24	0.772
	No	15	14.29	20	19.05	35	16.67	
	Don't No	21	20.00	17	16.19	38	18.10	
Butchers	Yes	51	48.57	46	43.81	97	46.19	0.562
	No	21	20.00	24	22.86	45	21.43	
	Don't No	33	31.43	35	33.33	68	32.38	
Veterinarian	Yes	48	45.71	54	51.43	102	48.57	0.772
	No	49	46.67	49	46.67	98	46.67	
	Don't No	8	7.62	2	1.90	10	4.76	

Table 3: knowledge of poultry farm workers and Bird market workers according to the source of information

Source of information		Poultry Farm workers(n=105)		Bird market workers(n=105)		Total		P.V
		No	%	No	%	No	%	
Television	yes	55	52.38	93	88.57	148	70.48	0.0001*
	no	50	47.62	12	11.43	62	29.52	
Radio	yes	88	83.81	76	72.38	164	78.10	0.045*
	no	17	16.19	29	27.62	46	21.90	
Newspaper	yes	76	72.38	83	79.05	159	75.71	0.260
	no	29	27.62	22	20.95	51	24.29	
Booklet	yes	56	53.33	64	60.95	120	57.14	0.265
	no	49	46.67	41	39.05	90	42.86	
Friends	yes	75	71.43	74	70.48	149	70.95	0.879
	no	30	28.57	31	29.52	61	29.05	
Health staff	yes	76	72.38	49	46.67	125	59.52	0.0001*
	no	29	27.62	56	53.33	85	40.48	
School curriculum	yes	70	66.67	64	60.95	134	63.81	0.389
	no	35	33.33	41	39.05	76	36.19	
Internet	yes	59	56.19	49	46.67	108	51.43	0.167
	no	46	43.81	56	53.33	102	48.57	

Table 4: The distribution of Poultry field workers and Bird market workers according to attitude

		Poultry Farm workers(n=105)		Bird market workers(n=105)		Total		
		No	%	No	%	No	%	P.V
See public health staff when get sick	Positive	73	69,52	55	52,38	128	60,95	0.011*
	negative	32	30,48	50	47,62	82	39,05	
See traditional healer when get sick	Positive	77	73,33	85	80,95	162	77,14	0.189
	negative	28	26,67	20	19,05	48	22,86	
Take the flu medication	Positive	55	52,38	49	46,67	104	49,52	0.408
	negative	50	47,62	56	53,33	106	50,48	
Do nothing, just stay at home	Positive	30	28,57	21	20,00	51	24,29	0.148
	negative	75	71,43	84	80,00	159	75,71	
See medical doctor when suspected with avian flu	Positive	37	35,24	16	15,24	53	25,24	0.001*
	negative	68	64,76	89	84,76	157	74,76	
Prefer to use private services for treatment of avian flu	Positive	36	34,29	32	30,48	68	32,38	0.555
	negative	69	65,71	73	69,52	142	67,62	
See traditional physician when suspected of avian flu	Positive	22	20,95	25	23,81	47	22,38	0.619
	negative	83	79,05	80	76,19	163	77,62	

Table 3: Practices of Poultry farm workers and Bird market workers according to preventive measures

Preventive measures		Poultry farm worker(n=105)		Bird market worker(n=105)		Total		
		No	%	No	%	No	%	P.V
Wash hand &wearing gloves after handling Sick or dead bird	yes	97	92.38	98	93.33	195	92.86	0.782
	no	8	7.62	7	6.67	15	7.14	
Wearing mask during exposure	yes	70	66.67	73	69.52	143	68.10	0.622
	no	35	33.33	32	30.48	67	31.90	
Avoid contact with sick or dead bird or poultry	yes	59	56.19	49	46.67	108	51.43	0.789
	no	46	43.81	56	53.33	102	48.57	
Cleaning equipment after they were used	yes	55	52.38	58	55.24	113	53.81	0.678
	no	50	47.62	47	44.76	97	46.19	
Stay away from poultry or chicken farm	yes	55	52.38	60	57.14	115	54.76	0.488
	no	50	47.62	45	42.86	95	45.24	
Cocking well	yes	55	52.38	57	54.29	112	53.33	0.657
	no	50	47.62	48	45.71	98	46.67	

Table 5: Knowledge, attitude and practices score of Poultry farm workers and Bird market workers

Score		Poultry farm worker(n=105)		Bird market worker(n=105)		Total		
		No	%	No	%	No	%	P.V
Knowledge	good	6	5.71	20	19.05	26	12.38	0.012*
	acceptable	43	40.95	40	38.10	83	39.52	
	poor	56	53.33	45	42.86	101	48.10	
	Total	105	100.00	105	100.00	210	100.00	
Attitude	good	22	20.95	26	24.76	48	22.86	0.015*
	acceptable	54	51.43	34	32.38	88	41.90	
	poor	29	27.62	45	42.86	74	35.24	
	Total	105	100.00	105	100.00	210	100.00	
Practices	good	63	60.00	43	40.95	106	50.48	0.008*
	acceptable	27	25.71	31	29.52	58	27.62	
	poor	15	14.29	31	29.52	46	21.90	
	Total	105	100.00	105	100.00	210	100.00	

DISCUSSION:

Human influenza pandemics have occurred periodically and will likely continue to occur. (2) A major risk factor is the panzoonosis of AI in domestic birds increasing the likelihood of mutational events and genetic re-assortment. (3) The first AI(H5N1) virus infected humans in Hong Kong in 1997 and subsequently spread to other countries causing hundreds of people to become sick with a case fatality rate exceeding 60%. (4) The study sample (Poultry farm workers Bird market workers) had poor knowledge score

About avian influenza this results is similar to study conducted in Italy with poultry workers also found inadequate knowledge regarding AI and low prevalence of bio-security practice. (7) Regarding knowledge of study sample about source of AI significant association was found between poultry farm workers and bird market workers regarding animal to human, bird to bird, and eating infected food or drinking infected water as a main source of avian flu and wild bird as a main vehicle for transmission of AI..Responses to other categories such as other

modes of transmission, populations at risk, and preventive measures were mixed these results agree with other reported studies by Abbate et, al., in Italy⁽⁷⁾ The most common source of information about AI was T.V for Bird market workers and radio for Poultry farm workers and the association was found to be statistically significant This result is similar to what had been reported by *Olsen et.al., in Thailand*⁽⁸⁾ *Leslie et,al 2008 in Afghanistan*⁽⁹⁾ and Kumar et,al, *in India 2013*⁽⁵⁾ The current study shows significant association between answers of Poultry farm workers and Bird market workers regarding awareness measures about AI i.e (See public health staff when get sick & See medical doctor when suspected with avian flu) while non significant association regarding other questions and the attitude score was acceptable for both groups these results are similar to *Neupane et, al., Nepal*⁽¹⁰⁾ The respondents to study questionnaire exhibited higher compliance with recommendations of the WHO to avoid spread of avian influenza through food⁽¹¹⁾ this was approved in this study majority of study sample (>90%) answer correctly for question (Wash hand & wearing gloves after handling Sick or dead bird) followed by question ((>60%)) Wearing mask during exposure & Avoid contact with sick or dead bird And the study sample had good score of practice about the preventive measures. Another study conducted in Italy among the general population showed low compliance with precautionary behavior⁽¹²⁾. A major strategy for controlling AI and eliminating the possibility of a pandemic outbreak is to practice bio-security. In the broadest terms, this serves to prevent the H5N1 virus from finding an ecological niche in poultry. Toward this end, interventions are proposed at both community and public policy levels.^{(13),(14)} If improved bio-security measures are implemented and maintained, they reduce the risk against virus introduction and amplification.⁽¹⁵⁾ All implied the practice of precautionary activities in avoiding infection by AI virus needs to be strengthened Facing AI, a new, emerging infectious disease with a high fatality rate, it is expected that people will have varying degrees of concern, ranging from indifference to panic. Timely and comprehensive public-risk communications from the government or other professional agencies are necessary to appease the possible negative social psychological influences such an outbreak would bring, in addition to the importance of persuading the public to take appropriate⁽¹⁶⁾

In conclusion: the study sample had poor knowledge, acceptable attitude and good practices regarding preventive measures of avian influenza

Recommendation: By developing and implementing public health policy regarding priorities for educational and promotion strategies and in particular more attention should be given on using preventive approaches in these population..

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