

Original article

Knowledge, Attitude and Practices related to AI among poultry workers of Bangladesh

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Abstract:

Background: AI (Avian influenza) refers to a large group of different influenza viruses that primarily affect birds. On rare occasions, these bird viruses can infect other species, including pigs and humans. The vast majority of avian influenza viruses do not infect humans. **Objective:** To assess knowledge, attitude and practices related to AI among poultry workers. **Methodology:** A descriptive cross sectional study was designed to conduct in Bangladesh with a pretested modified questionnaire by face to face interview. **Result:** Current study revealed that nearly one third of the respondents were belonged to age group 26-30 years (39.17%) with the mean age 32.18±6.65 years. Majority of the respondents were male (70%). Nearly two thirds (80%) were owners of poultry farms. Half of them (49.67%) got information regarding AI by electronic media. Nearly one third of the study respondents (34.17%) replied that hand washing after poultry care and less than one third of the respondents (31.67%) said by using PPE (Personal Protective Equipment) during poultry care can prevent AI. Most of the participant said that they informed Rapid Response Team (RRT) for management of sick or dead poultry. More than half of the respondents (57.5) were using PPE. Association found between Socio-demographic variable (Age) and Knowledge on preventing avian influenza among the respondents where p-value=0.001. **Conclusion:** Knowledge and practices about AI disease among the poultry workers was moderate, but their attitudes were positive. Therefore, designing and implementing health educational programs and ensure proper training for poultry workers about AI to improve preventive practices should have the priority to eliminate the disease.

Key words: Rapid Response Team (RRT)

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Background

Bangladesh is a high risk country for an influenza pandemic because of its dense human population, expansion of backyard poultry with minimum bio-security and endemic avian influenza (H5N1 infection) in poultry sector.¹ In March 22, 2007 Bangladesh faced the first localized outbreak of highly pathogenic avian influenza (H5N1, HPAI) among poultry.² Of the affected 20 backyard farms, 14 were situated in 7 northern districts.² The outbreaks peaked on March 26, 2007, when 11 affected farms in 3 districts—Dhaka, Gazipur, and

Narayangogj.² Again the outbreak peaked in 2008, with 226 reported between January and March but decreasing trend in incidence continued up to 2009.² Second outbreak has been reported on 25 March 2010³ when 297 cases found in commercial farms and 53 in backyard poultry.³ Total 6 human cases were reported in Bangladesh.¹ First cases of AI (avian influenza) recognized in 2008 while 2nd and 3rd cases were reported in 2011.¹ Rest of the three cases were reported in 2012. Last two cases had

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recovered.¹

It can be said that decreasing trend in incidence of the past three years is continuing. Several investigation found that primary source of infection was backyard chickens which belongs to the subclade 2.2 of the Qinghai lineage⁴ that might be closely related to viruses isolated from Afghanistan, Mongolia, and Russia⁴ but in Bangladesh this disease has been recorded in ducks, pigeons and non-migratory wild birds (mostly crows) as well. About 21 species of migratory birds capable of carrying the virus visit the country annually every winter. So it was also assumed that the virus might have entered Bangladesh through migratory birds.⁵⁻⁷

Although several projects have been implemented in Bangladesh with financial support of FAO, World Bank, ADB mostly for strengthening disease surveillance, AI virus elimination and communication campaigns remain firmly entrenched.¹ Three major constraints identified that inhibit progress towards AI virus elimination effort which encompass the structure of the poultry industry, the quality of Veterinary and poultry production service along with the level of commitment by all sectors.³ Hence, AI in Bangladesh remains a significant threat to avian health and welfare, public health, agricultural productivity, economics and livelihoods of the poorest farmers.

Therefore, this study aimed to find out the knowledge, attitude and preventive practices of avian influenza among the poultry workers in the Keraniganj, Tejgaon & Dhamrai from Dhaka district and Harirampur, Shibalaya & Sadar from Manikganj district.

Methodology:

The study, which took place between January to April 2012 was based on a cross-sectional survey design. Face-to-face interviews with the help of a pretested, modified questionnaire were conducted with 120 poultry workers from Keraniganj, Tejgaon & Dhamrai upazila of Dhaka district and Harirampur, Shibalaya & Sadar upazila of Manikganj, Bangladesh. This district was chosen because AI was peaked in time of first outbreak.² but no actual cases of H5N1 had appeared in this area at the time of the study. As the study has been done in a small area so the outcomes might not represent the situation of the country as a whole. Prior to the interviews verbal informed consent was obtained from participants. Prior to study, ethical approval was

taken from local ethical committee.

Questionnaire:

The interview was based a pretested ,modified questionnaire divided into four different parts was used to collect the information.

First, second, third and fourth parts containing Socio-demographic information, Knowledge related information, Attitude related information and Practice related information respectively.

Socio-demographic information

Socio-demographic information was collected for age, gender, school education and occupational status (owner of poultry farm versus paid employee).

Knowledge related information

Knowledge about avian influenza was assessed by asking whether cases of avian influenza among poultry had appeared in Bangladesh (yes/no).

Perceptions of professional risk were measured by a question asking about whether particular professional groups such as poultry workers, butchers or health workers were at risk for contracting avian influenza (yes/no).

Then participants were asked for the route of transmission of avian influenza, by flies, Mosquito, Saliva, Sexual intercourse, Placenta, Blood transmission and Birds.

Again knowledge about prevention of avian influenza was assessed by asking whether avian influenza can be prevented by Hand washing after poultry care, eating well cooked meat and eggs, Read prevention related articles, Use of PPE (Personal Protective Equipment) during poultry care.

Further, participants were asked from which sources they had obtained information about avian influenza, among them electronic media, religious leader, counseling through GO/NGO, Miking, and training to the poultry worker. For each behavior correctly identified one point was assigned.

Attitude related information

Attitudes towards Concern authority of legal notification were assessed by first describing about Local political member, Rapid response team member, UN organization and then asking whether respondents agreed with or disagreed with about these notifications.

Afterwards another item asked about habitual actions taken when sick or dead poultry was found on the farm they do, inform rapid response team (Yes/No)

Practice related information

Finally, study participants were asked for use of hand washing solution after dealing with poultry, only

running water, water and soap, anti bacterial solution and liquid hand wash.

They were also asked for using the following personal protective equipments while dealing with poultry, Gloves, musk, gloves and musk together and gowns. Training regarding avian influenza prevention was also assessed by asking them (yes/no)

Descriptive statistics and chi-square test were done to explore associations between demographic characteristics, knowledge and preventive practice scores. All levels of significance were set at $p < 0.05$

Result:

Current study reveled that nearly one third of the respondents were belonged to age group 26-30 years (39.17%) where as more than one fourth belong to 31-35 years (32.5%) with the mean age 32.18 ± 6.65 years. Majority of the respondents were male (70%). More than half of the respondents having educational qualification were higher secondary pass (55%) while about one third are completed secondary education (34.17%) and only nine point seven percent were found to be illiterate. Nearly two thirds

Table no 1: Distribution of respondent by knowledge about cases of avian influenza among poultry had appeared in Bangladesh (n=120)

Knowledge about cases of avian influenza	Frequency	Percent
Yes	109	90.83
No	11	9.16
Total	120	100.0

(80%) were owners of poultry farms, the others (20%) were employed workers.

Knowledge related information

Among the study respondents most of them 90.83% knew that cases of avian influenza among poultry

Table no 2: Distribution of respondent by knowledge about more vulnerable to develop avian influenza (n=120)

Vulnerable group	Frequency	Percent
Poultry workers	82	68.33
Butchers	35	29.17
Health workers	3	2.5

had appeared in Bangladesh (Table 1)

More than half (68.33)of the respondents said that poultry workers are more vulnerable group to devel-

op avian influenza while one third of the respondents reported butchers are more vulnerable and rest of them said health workers . (Table 2)

More than half of the respondents (65%) identified that avian influenza can transmit by bird._

Nearly one third of the study respondents (34.17%) replied that hand washing after poultry care, less that

Table no 3: Distribution of respondent by knowledge about prevention of avian influenza (n=120)

Knowledge about prevention of avian influenza	Frequency	Percent
Hand washing after poultry care	41	34.17
Eating well cooked meat and eggs	27	22.5
Read prevention related articles	14	11.67
Use of PPE(Personal Protective Equipment) during poultry care	38	31.67

one third of the respondents (31.67%) said by using PPE (Personal Protective Equipment) during poultry care ,more than twenty percent said by Eating well cooked meat and eggs and rest of them (11.67%) said by reading prevention related articles can prevent that transmission of avian influenza. (Table 3)

When knowledge about the source of information regarding avian influenza assessed by multiple responses among the respondents it was found that most number (63.21%) said by counseling through GO/NGO by health worker , half of them (49.67%) By electronic media whereas more that one third (38.44%) said by training to the poultry worker and rest of them (34.23%) said by community leader they got information.

Attitude related information:

When attitude towards proper authority of legal notification of avian influenza were assessed it was found that almost half of the respondents (48.7%)

Table no 4: Distribution of respondent by management of sick or dead poultry (n=120)

Inform rapid response team	Frequency	Percent
Yes	109	90.83
No	11	9.16
Total	120	100.0

agreed about member of RRT, nearly one third agreed (30.44%) about UN organization and remaining twenty percent agreed about Local political member .

Most of the participant said that they informed Rapid Response Team (RRT) for management of sick or dead poultry. (Table 4)

Practice related information

When hand washing practice among the respondents after dealing with poultry assessed it was found that more than half of the respondents (65.83%) washed their hands always while less than one third (22.5%)

Table no 5: Distribution of respondent by use of hand washing solution after dealing with poultry (n=106)

Hand washing solution	Frequency	Percent
Only running water	27	25.47
Water and soap	76	71.7
Anti bacterial solution	0	0
Liquid hand wash	3	2.83
Total	106	100.0

practiced sometimes and remaining of them (11.67%) never washed.

Among those washed their hand majority (71.7%) washed their hand with soap and water, less than one third (25.47%) used water only and very few (2%) used liquid hand wash.(Table 5)

While assessing use of PPE(Personal Protective Equipment) more than half of the respondents (57.5)reported about using PPE. Among them less than half (43.5%) and one third (36.67%) responded

Table no 6: Distribution of respondent Type of personal protective equipments during work place

PPE use	Frequency	Percent
Gloves	30	43.5
Musk	25	36.2
Gloves and musk	14	20.3
Total	69	100

as using gloves only, musk only while rest of them said gloves and musk together (4%) (Table 6)

Study findings showed that majority of them (76.67%) received training regarding avian influenza prevention.

Association found between Socio demographic variable (Age) and Knowledge on preventing avian influenza among the respondents whereas p- value= 0.001

Discussion:

The higher knowledge could also be due to several projects have been implemented in Bangladesh with financial support of FAO, World Bank, ADB mostly for strengthening disease surveillance, AI virus elimination and communication campaigns.¹

The current study illustrated that more than half of the respondents agreed that poultry workers are more vulnerable group to develop avian influenza whereas a study conducted in Nepal.⁸

This study revealed that more than half (68.33)of the respondents agreed that poultry workers are more vulnerable group which are different from a study

Table no 7: Association between Socio demographic variable (Age) and Knowledge on preventing avian influenza among the respondents

Knowledge on preventing AI	Age in years					Total	P-value
	21-25	26-30	31-35	36-40	>40		
Hand washing after poultry care	5	18	11	4	3	41	0.001
eating well cooked meat and eggs	2	9	14	0	2	27	
Read prevention related articles	6	4	2	1	1	14	
Use of PPE(Personal Protective Equipment) during poultry care	2	16	12	6	2	38	
Total	15	47	39	11	8	120	

*Chi-square test

conducted in Nepal⁸ where all of the respondents knew that poultry workers were among the “at-risk-groups” for being infected with avian influenza. This discrimination might be due to one of the major constraints of AI elimination described by Recent FAO report.⁹

A study conducted in Egypt reveals that majority of respondents of all groups had knowledge through the mass media (98.2%)¹⁰

This information varied with our study where, half of the respondents got information about AI (49.67%) by electronic media might because of different economic status but it was almost same as study conducted at Nigeria in similar settings (57.9%).¹¹

Study conducted in Nepal shows that only one per cent had received health information from health workers while current study reveals that most number (63.21%) of the respondents said by counseling through GO/NGO by health worker they got proper information.⁸

As regards the methods of transmission, in the current study when asking vector of AI of AI more than half of the respondents (65%) identified by bird which is different from the study conducted in Nigeria where only 28.7% knew it.¹¹

While assessing use of PPE (Personal Protective Equipment) more than half of the poultry workers use PPE (57.5%). Low usage rates for protective clothing have recently also been reported by studies with Nigerian¹²⁻¹³ and Nepali⁸ poultry farmers findings may be dissimilar because of preventive programs taken by Government and Non-Government organization while findings from an Italian study registered considerably higher rates¹⁴ which probably reflects different financial resources to fund such equipment on a regular basis. The data on protective behaviors’ showed that washing hands with soap and water were fairly standard practice. When hand washing practice among the respondents after dealing with poultry assessed it was found that more than half of the respondents (65.83%) always washed their hands

Also in a KAP study performed in Italy¹⁴, after handling poultry, the majority of those who had contact with the fowl (93.5%) washed their hands every time after handling or contacting the poultry. This discrimination might happen due to lack of training among the poultry workers.

Most of the Italian¹⁴ poultry worker (84.3%) used

soap to wash their hands which is supported by current study where among those who washed their hand regularly 71.7% use soap and water.

Association found between Socio demographic variable (Age) and Knowledge on preventing avian influenza among the respondents which is supported by study conducted in Nepal.⁸

If early notification is a key component of prevention and rapid response, trust in government actions, including compensation measures, is crucial in order to enable pervasive compliance with drastic and economically threatening actions³

A major limitation of the study lies in the small, non-random sample which restricts possibilities to generalize findings from the present data .Another clear weakness is the cross-sectional

study design which prohibits drawing causal conclusions about the relationships between some of the variables, knowledge and practices. Finally, self-report on practices are generally vulnerable to recall bias and social desirability tendencies. The face-to-face-interview situation, while enabling full response-rates on all variables as well as participation of poultry workers who lack reading or writing abilities, might have additionally heightened this type of bias in assessing attitudes and behaviors’.

Conclusion and Recommendation:

Current study reveals moderate knowledge, practice and positive attitude among the poultry workers of Bangladesh. Knowledge of personal protective equipment (PPE) varies considerably among the participants. Hand washing is considered to be one the most effective protective measures to prevent contracting avian influenza. Hand washing practice was not adequate among them that needed to be enhanced. The current protection practice against contacting AI revealed to be inadequate. None of the responded could mention the optimum measures of protection for AI. Beyond large-scale mass education campaigns, awareness creating to the poultry workers future efforts should focus more strongly on target-group-specific information and practical trainings to enhance protective behaviors. Besides this, social marketing of protective equipment should be increased. Rapid reporting of infection, prompt and adequate response, and community support for disease control activities require a high level of public awareness and knowledge about AI and the various issues involved and a commitment to comply with control policies and actions. At the regional and national levels, partnerships should be established

along with appropriate government bodies (including ministries of agriculture), the media, NGOs and the private sector need to work together to roll out

communication campaigns adapted to local conditions and priorities.

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