



Study of knowledge and attitude towards avian influenza in a post-outbreak area

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Abstract:

Background: Tripura has experienced seven episodes of Avian Influenza (AI) since 2008. Hence the study was conducted to assess the Knowledge of Avian Influenza and to assess the Attitude towards the prevention of human cases of Avian Influenza infection among the population residing in a post-outbreak zone. **Materials and methods:** A Cross-Sectional study was conducted within 3 km. radius area of a reported outbreak of Avian Influenza. Sample size was calculated and 300 respondents were selected by PPS sampling technique. **Results:** Majority of the respondents (78.00%) had the knowledge regarding the bird flu outbreak in the area. Administration was the most effective source of information (50.00%) followed by media (32.70%). Majority of respondents (73.00%) had the knowledge that human can get affected from Bird-Flu and 23.30 percent had the knowledge that AI is transmitted to human by touching infected poultry. Regarding protection, 14.30percent responded that proper hand washing after handling of poultry is the main protective measure and 44percent of the respondents had increased the frequency of hand washing compared to pre-outbreak time. Multiple logistic regression analysis showed that those who have heard of the outbreak of bird flu in the area and those who used to rear backyard poultry in their houses had significantly increased their hand washing frequency. **Conclusion:** More administrative efforts and intersectoral collaboration is necessary in future for effective risk communication to reduce the knowledge gap among the general population in outbreak situation.

Keywords: Avian Influenza, Post outbreak area, Probability proportionate to size sampling.

Introduction

Avian influenza is caused by influenza A virus, subtype H5N1, which are mainly adapted to birds. Avian Influenza may be transmitted from birds to human directly or through intermediate hosts like pig [1]. Infected bird can spread the infection through their saliva, nasal secretion, fecal matter, blood, or through surfaces contaminated with them. The viral spread from person to person is rare, limited & ill sustained.

Though there was no reported Human cases of avian influenza in India, but there were reported outbreaks of Avian Influenza in different states of India since 2006 [2]. There have been seven episodes of Avian Influenza in Tripura since 2008. Two episodes occurred in the month of February & March 2011 [3] following which the study was conducted in a post outbreak area in order to assess the Knowledge of Avian Influenza among the population residing in the three Km radius of a post-outbreak zone of Avian Influenza and also to assess their attitude towards the prevention of human cases of avian influenza.

Materials and Methods

This cross-sectional, community based study was conducted between 26-04-11 to 23-05-11, within three km radius area of an avian influenza epicenter, a poultry farm of Gandhigram, 15 km away from capital of Tripura. This three km radius was taken because this zone is considered as the zone of critical infection in Avian Influenza.

The sample size was arrived considering the prevalence of Knowledge (p) regarding avian influenza to be 75.70 percent [4] and absolute precision = E=10percent of p = 7.57. Let q be 100 – p. Thus, p=75.70 percent, q=24.30percent. Using sample size, $n = Z_{\alpha/2}^2 pq / E^2$. The minimum sample size was estimated to be 124. Considering 10percent non response rate, sample size was summed up to 136. As it was planned for cluster sampling, sample size was multiplied by two i.e, design effect then rounded to 300.

A two-staged cluster sampling technique was used and Probability Proportionate to size sampling technique (PPS) was applied to choose the clusters. As per the PHC survey data there were 21,410 people in this

three km. zone of the post outbreak area. Sampling Interval for the survey was obtained by dividing the total population size by the number of clusters (30 clusters) to be surveyed, and the sampling interval was found to be 713.

A random number between 1 and 713 was chosen as 167. So, 1st cluster was selected where 167 number was included in the cumulative population column. The process was continued to assign clusters by adding 713 cumulatively till the completion of 30 clusters. From each clusters 10 households were chosen randomly. From each household the head of the household was interviewed. In the absence of head of Household senior-most member was taken. Un-willing

Head of household or Houses with no member available for interview on the day of visit were excluded.

A pretested questionnaire was administered face to face and the socio demographic information, Knowledge & Attitude about Avian Influenza was elicited. Informed consent was taken from every respondent.

This study has been approved by the ethical committee of Agartala Government Medical College.

Data analysis was done in Epi.info and was expressed in frequency and percentage, and multiple logistic regression was used and p value<0.05 was considered significant.

Results:

Of the total 300 respondents 53.30 percent were females and 46.66 percent were males (table 1). The

socio demographic profile showed that majority (31.30%) of the respondents were in the age group of 31 to 40 years, followed by 25percent in 41-50 years.

Table 1: Socio-demographic status of the study population

		Frequency (n=300)	Percent (%)
Sex	Male	140	46.66
	Female	160	53.34
Age	<=20 years	15	5
	21-30 years	72	24
	31-40 years	94	31.34
	41-50 years	75	25
	51-60 years	27	9
	>60 years	17	5.66
Education	Illiterate	37	12.3
	Primary	141	47
	Secondary	91	30.3
	Graduate & Above	30	10
	Technical Education	1	0.3
Occupation	Govt. service	44	14.66
	Business	36	12
	Skilled labor	36	12
	Unskilled Labor	39	13
	House wife	132	44
	Student	13	4.34

Table 1 also shows that 12.30 percent of the respondents were illiterate and majority (47.00%) of the respondents had primary education. Majority (44.00%)

of the respondents was housewife and 14.66 percent were at government service.

Table 2: Knowledge of Avian Influenza infection among the residents of post outbreak area

	Frequency	Percentage (%)
Knowledge of Avian Influenza outbreak in the area (n=300)		
Yes	234	78
No	66	22
Knowledge regarding human infection with Avian Influenza (n=300)		
Yes	219	73
No	81	27
Source of information regarding Avian Influenza outbreak in the area. (n=234)		
Media	76	32.47
Neighbors and friends	29	12.4
Administration	117	50
At the market	3	1.28
Other gathering place	6	2.57
At work	3	1.28
Knowledge about mode of transmission of Avian Influenza (n=219)		
From touching birds	51	23.3
From eating poultry	126	57.72
From eating raw poultry	6	2.56
Through air	24	10.95
From water	5	2.28

Table 2 shows that out of the 300 respondents, 78 percent were aware of the fact that there was a bird flu outbreak in their area. The most effective source of information regarding the bird-flu outbreak was the administration (n=117, p=50%). Majority of the respondents (73%) in the post outbreak area had the awareness that human can get bird flu infections. Out of them majority (58.11%) said that the mode of transmission was through eating poultry while 23.30 percent said that the transmission occurs by touching infected birds. Majority (42.30%) of the respondents had reported that stopping consumption of poultry could protect them from bird flu infection. Whereas 16 percent of the respondents said that washing hands after handling poultry was the method of protection, whereas 14.30 percent said not handling chickens as a protective measure.

Table 3: Attitude towards hand washing practice for the prevention of human cases of Avian Influenza infection

	Frequency (n=300)	Percentage
Hand washing practice after handling poultry		
Yes	282	94.00
No	18	6.00
Attitude towards hand washing practice after the avian influenza outbreak in the area		
Hand washing increased	132	44.00
Hand washing practice remained same	168	56.00

Table 3 shows that 94 percent of the respondents in the post outbreak area do practice hand washing after handling poultry irrespective of the knowledge of its importance in prevention of spread of the disease. But 44 percent of the study participants responded that they have increased the frequency of hand washing compared to the pre-outbreak time.

Multiple logistic regression analysis in table 4 showed that those who have heard of the outbreak of bird flu in the area had 98.30 percent higher frequency of hand washing compared to the pre outbreak period and it was found to be statistically significant (P value=0.016). Those who use to rear backyard poultry in their houses had 82.20 percent increase in their hand washing frequency and it was also statistically significant (P value=0.045). Male had lesser frequency of hand washing but it did not attain the level of statistical significance.

Discussion

The study was conducted at Gandhigram where there was a reported outbreak of Avian Influenza in the month of February, 2011 and 300 individual respondents were selected from the study area by cluster sampling using Probability Proportionate to size technique (PPS).

From the present study, it was observed that 98.70 percent respondents heard about Avian Influenza (Bird Flu), 78 percent respondents had knowledge about the fact that there were outbreaks of Avian Influenza in their locality. Similar study from Egypt also reported 75.70 percent had fair knowledge about Avian Influenza [4].

Regarding source of information of the present outbreak 50 percent respondents reported they received the news from local administration. A similar study from China [5] reported television as the major source of information in both the rural (95.50%) and urban (91.50%) areas. Though in the present study the role of electronic media was only 32.47 percent, other communication channels were also source of

information most probably because, in response to the outbreak all the risk communication channels were activated.

Regarding knowledge about the transmission of AI to human, 73percent respondents replied that it was possible for the humans to acquire the AI infection. Study from Egypt [6] reported 48.60 percent of the respondents believed that they can be infected.

Table 4: Multiple logistic regression analysis for increase in hand washing frequency in post outbreak period

<i>Categorical Variable</i>		<i>OR (95% C.I.)</i>	<i>P value</i>
Sex	Female	1	0.374
	Male	0.804 (0.498-1.3)	
Educational Status	Illiterate	1	0.875
	Literate	0.943 (0.454-1.958)	
Monthly Income of the Family	≤ Rs 5000	1	0.009
	>Rs 5000	0.514 (0.31-0.849)	
Knowledge of bird flu outbreak in the area	No	1	0.016
	Yes	1.983 (1.135-3.466)	
Rearing poultry in the house in the post outbreak period	No	1	0.045
	Yes	1.822 (1.013-3.278)	
Poultry culled in the house in the post outbreak period	No	1	0.028
	Yes	0.565 (0.339-0.940)	

Regarding knowledge about different methods of prevention from bird flu, 14.30percent respondents had the knowledge that hand washing is an important method of protection. Whereas, 14.30 percent replied that by not handling chickens they can protect themselves from AI and 13.30 percent wanted to get rid of chickens as a protective measure. But majority of the respondents (42.30%) replied that by avoiding consumption of poultry product they can protect themselves. In a study conducted in Egypt [4] it was reported that 54.60 percent respondents practiced hand washing and 51.30 percent avoided contact with infected bird. The present study revealed that a definite knowledge gap existed among the respondents in post outbreak area.

Regarding eating of poultry product, it has been observed usually after bird flu outbreak consumption of poultry is markedly declined. Similarly in the present study 75percent of respondents in the post outbreak area

had either stopped or reduced the consumption of poultry product which may lead to serious economical disruption among the poultry and related industries. Similar observation was reported from different study elsewhere [4-9]. So it can be concluded that risk communication regarding Avian Influenza was either insufficient or inefficient.

Regarding hand washing practice, 94 percent respondents replied that they wash their hands after handling chicken and ducks and regarding hand washing technique 91 percent respondents wash their hands with soap and water. As the hand washing is one of the important practices for prevention of transmission of human cases of Avian Influenza, the present study tried to illicit hand washing practice before and after outbreak of Bird Flu in the study area. Present study indicated that 44 percent respondents increased the frequency of hand washing.

Thus the present study showed that the knowledge and attitude towards prevention of Avian Influenza in the post outbreak area is fair but insufficient. More administrative efforts and intersectoral collaboration are necessary in future for effective risk communication regarding the modes of transmission of avian influenza, protective measures, etc so that the knowledge gap among the general population can be reduced in outbreak situation.

Recommendations

The present study revealed that the knowledge and attitude towards the prevention of avian influenza in the area was not satisfactory, so more effective risk communication of Avian influenza, intersectoral collaboration and administrative efforts are necessary in the general population regarding the prevention of human cases of Avian Influenza.

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