

# Awareness Regarding Preventive Measures of Avian Influenza Among the Adult People of Thimi Municipality, Nepal

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## INTRODUCTION

Avian influenza, commonly known as bird flu, is one of the most serious health threats today. It is an infection caused by avian (Bird) influenza (flu) viruses.<sup>1</sup> Avian influenza is caused by influenza virus type A, H5N1 strain.

The first known infection with H5N1 occurred in Hong Kong in 1997.<sup>2</sup>

These influenza viruses occur naturally among birds. Wild birds worldwide carry the viruses in their intestines, but usually do not get sick from them. However, avian influenza is very contagious among birds and can make some domesticated birds, including chicken, ducks and turkeys, very sick and kill them. Infected birds discard influenza virus in their saliva, nasal secretions and feces and the most out breaks of avian influenza can be linked to the use of

## ABSTRACT

### Background

Avian influenza is considered as a threat to global public health. Prevention and control depends on the awareness of the general population as well as high risk-groups. The avian influenza should be viewed more seriously because it may lead to pandemic influenza when the virus mutates its strain with the common human influenza. Thus, this study aims to explore the awareness regarding preventive measures of avian influenza among the adult population of Thimi Municipality.

### Objective

The objective of this study was to explore awareness regarding preventive measures of avian influenza among the adult population of Thimi Municipality.

### Methods

It is a cross-sectional, population based study. It was carried out in Thimi Municipality from May 15 to June 15, 2012. Pre tested structured questionnaire was used for face to face interview with randomly selected 250 subjects.

### Results

Out of 250 subjects, 123 (49.2 %) were males. The mean age of subjects was 36 ± 11.8 year. Among total subjects, 94.4 percent had heard about avian influenza. The main source of information was television (94.1%). Majority of subjects (84.9 %) thought that keeping infected birds and poultry as the mode of transmission followed by eating not well cooked poultry meat (82.8 %). Out of total study subjects, 165 (66.0 percent) mentioned fever and 138 (55.2 percent) thought fatigue as the signs and symptoms. As for knowledge about preventive measures, majority (85.6%) stated that cleaning the surfaces that had come in contact with the poultry could prevent the disease and 83.2 % had knowledge that the infection could be prevented by washing hands with soap and water after poultry handling.

Awareness regarding preventive measures was found significantly low in females, middle adults, illiterates, and house wives.

### Conclusion

The awareness regarding avian influenza was quite satisfactory among the adult people of Thimi Municipality. However level of awareness was seen lower in female, illiterate and middle adult. So that along with large scale mass education, there should be specific health education program for the specific group of population.

## KEY WORDS

*Awareness, avian influenza, preventive measures*

infected poultry dung for fertilization without treatment.<sup>3</sup>

Scientists are concerned about the highly pathogenic H5N1 virus for three reasons: it threatens domestic poultry, especially chickens, throughout the world; also it has passed from poultry to humans and caused serious illness and death.<sup>4</sup>

In Nepal, the first case of avian influenza was detected on January 16, 2009 in a small non commercial poultry farm in Kakarvitta town, Jhapa. Since then it has occurred at many places in the country.<sup>5,6</sup>

As poultry outbreaks had already occurred many times in the study area hence it is quite possible that it may affect human beings as well. As it is known that the prevention and control of the infection depends on the awareness among general population, hence aim of this research is to explore the awareness regarding preventive measures of avian influenza among the adult people of the study area.

### METHODS

A cross sectional population based descriptive study was conducted in Thimi Municipality from May 15 to June 15, 2012. Among 17 wards of the Municipality, ward numbers 3, 6, 7, 8, 9, 10, 11, 13 and 15 were selected by using Simple Random Sampling Technique, and 28 households from each selected ward were selected using Systematic Random Sampling. Among the available eligible family members of household, one member was selected using simple random sampling. All total 250 subjects were included in the study. The sample size was calculated by using the formula  $4pq/d^2$ . Where, p is taken 42% and d is taken 15%. Three well trained research assistants collected data through home visit using pre-tested structured questionnaire. The structured questionnaire consists of two parts. The part one consist questions related to the socio-demographic variables and the part two consist of questions related to awareness regarding preventive measures of the infection.

Awareness: Aware about mode of transmission, signs and symptoms and preventive measures. Researchers allocated 1 point for each correct answer and 0 point was given for each incorrect answers. The respondent is considered as aware if he or she can correctly response  $\geq 50$  percent knowledge related questions.

Data was collected after getting approval from Institutional Review Committee of Kathmandu University School of Medical Sciences. The collected data was entered in SPSS (Statistical Package for Social Science) version 16 for analysis. Data were coded and recoded to simplify the process of data entry and analysis. Simple descriptive statistics such as percentage, mean and standard deviation were calculated and chi-square test was used to test the association between selected variables. All p-values less than 0.05 were considered statistically significance.

### RESULTS

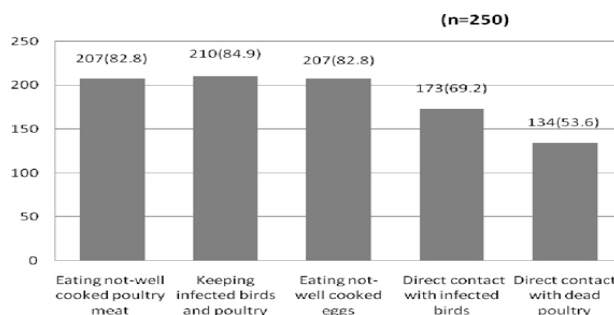
Among 250 subjects, 49.2 percent were males. The mean age of the subjects was 36 +11.8 years with age ranging 20 to 64 years. Among total subjects, 66.4 percent were from young adults and rest 33.6 percent from middle adults. Forty six percent of respondents were engaged in business and only 12 percent of them were illiterate (Table1).

**Table1. Socio demographical variables (n = 250).**

Variables	Number (%)
<b>Age Group</b>	
Young adult	166 (66.4)
Middle adult	84 (33.6)
<b>Gender</b>	
Female	127 (50.8)
Male	123 (49.2)
<b>Educational status</b>	
Illiterate	30 (12.0)
Informal education	18 (7.2)
Primary secondary	49 (19.6)
Secondary level	69 (27.6)
Higher secondary level	32 (12.8)
Bachelor or above level	52 (20.8)
<b>Occupation</b>	
Business	116 (46.4)
Housewife	41 (16.4)
Students	39 (15.6)
Agriculture	29 (11.6)
Service/Job	25 (10.0)

Among total subjects, 94.4 percent had heard about avian influenza. The main source of information was television (94.1%) followed by News paper (71.2%) and Radio (64.8%). Out of 250 subjects, 94.4 percent stated that virus is the causative organism of avian influenza.

As for knowledge about mode of transmissions of the disease, majority of them (84.9 %) reported that the infection could result from keeping infected birds and poultry, and followed by eating not well cooked poultry meat and eggs (82.8 %). Other transmission routes reported by subjects were direct contact with infected birds (69.2 %) and direct contact with dead poultry (53.6 %) (Fig. 1).



**Figure 1. Awareness regarding mode of transmission .**

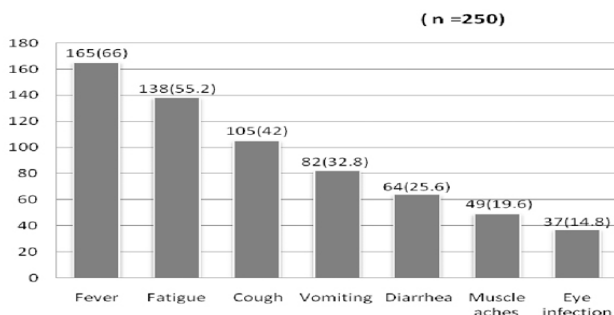


Figure 2. Awareness regarding sign and symptoms .

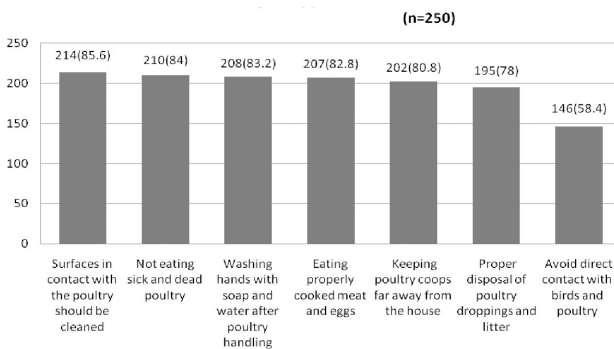


Figure 3. Awareness regarding preventive measures.

Table 2. Overall awareness on Avian influenza (n = 250).

Awareness	Number (%)
Aware	177 (70.8)
Not aware	73 (29.2)
Total	250 (100)

Regarding sign and symptoms in human, majority (66.0 %) believed that fever as the sign and symptoms of avian influenza. Others responses provided by subjects were fatigue (55.2 %), cough (42.0 %), vomiting (32.8 %) diarrhea (25.6 %), muscle aches (19.6 %) and eye infection (14.8 %) (Fig. 2).

As for knowledge about preventive measures, majority of subjects (85.6%) stated that cleaning surfaces in contact with the poultry could prevent the disease, and 84.0 percent had knowledge that the infection could be prevented by not eating sick and dead poultry. Other preventive measures reported by subjects were washing hands with soap and water after poultry handling (83.2%), eating properly cooked meat and eggs (82.8%), keeping poultry coops far away from the houses(80.8%), proper disposal of poultry droppings and litter (78.0 %) and avoid direct contact with birds and poultry (58.4%)( Fig. 3).

Base on operational definition of the research, 70.8 percent of the total subjects were aware about the preventive measures of avian influenza. Knowledge regarding preventive measures was found significantly low in females ( $p < 0.001$ ), middle adult ( $p = 0.005$ ), illiterates ( $p = < 0.001$ ), and house-wives ( $p = 0.024$ ).

Table 3. Awareness on preventive measures of Avian influenza and associated variables (n = 250).

Variable	Total subjects	Aware subjects Number (%)	p value
<b>Gender</b>			
Male	123	100 (81.3)	<0.001
Female	127	77 (60.6)	
<b>Age group</b>			
Young Adult	166	127 (76.5)	
Middle Adult	84	50 (59.5)	0.005
<b>Education Level</b>			
Illiterate	127	9 (30.0)	<0.001
Literate	123	168 (76.4)	
<b>Occupation</b>			
Housewife	41	23 (56.1)	0.024
Other than Housewife	209	154 (73.7)	

## DISCUSSION

Avian influenza is a considerable threat to global public health. Influenza pandemics are unpredictable but recurring events that can have health, economic and social consequences worldwide. Prevention and control depend on awareness and protective behaviors of the general population. WHO also agreed that a strong unfulfilled need for public awareness about avian influenza is evident in Asian countries. Control strategies required public awareness for success.<sup>7</sup>

Among the total subjects 94.4% had heard about avian influenza. Regarding the source of information majority of them (94.1%) got the information from television, followed by news papers (71.2 %). and radio (64.8%). Similar findings were also observed in study conducted by Abbate et al., in Italy on knowledge, attitudes, and practices of avian influenza.<sup>8</sup> Similarly, the study done by Marinos G et al in Greece, 87% had heard about bird flu among them, 88.8% obtained information from television.<sup>9</sup> In study conducted by Neupane et al, in Nepal in 2009, and Khan SA et al in Karachi, in 2008 also showed that television as a main source of information regarding avian influenza.<sup>10, 11</sup>

In this study, awareness about sign and symptoms, mode of transmissions and preventive measures among study subjects is quite high which may be because of the fact that they already had the outbreak in their community and government and non government agencies might have already done campaigning efforts for promoting awareness after the outbreak.

This present study revealed that, 94.4 % of the subjects were aware that it is a viral disease which is comparable to the study done by Khan SA et al as 70% of the subjects stated it as a viral disease.<sup>11</sup> In the present study 90.4 percent of the respondents believed poultry workers as risk for infection which is in contrast to the study conducted by Alam MJ et al where only 30.97% subjects thought that poultry carrying

people are susceptible group.<sup>12</sup>

Direct contact with infected poultry or with surfaces and objects contaminated by their droppings is considered the main route of human infection.<sup>7</sup> In this study, Majority of subjects (84.9%) reported that the infection could result from keeping infected birds and poultry. And for other transmission routes reported by respondents were eating not well cooked chicken and eggs (82.8 %), direct contact with infected birds (69.2 %) and direct contact with dead poultry (53.6 %). Unlike our findings, Kim JH et al, in 2009, reported that only 69.1% said consuming undercooked poultry could transmit the virus and 14.0 % said eating undercooked chicken and eggs.<sup>13</sup>

However, in this study few subjects (8.8 %) thought that consuming poultry meat is the major mode of transmission. Hence this became the common misconception during the outbreak but to date no evidence indicates that anyone has been infected following consumption of properly cooked poultry (cooked > 70° Celsius) or poultry products, even when these foods were contaminated with H5N1 virus.<sup>7</sup>

In humans, the clinical spectrum of influenza (H5N1) varies from milder illness, sub clinical infection to atypical presentation in the form of encephalopathy or gastroenteritis.<sup>14,15</sup> Most patients have an initial common complaint of high grade fever and influenza-like symptoms<sup>7</sup>. Less common reported symptoms are diarrhoea, vomiting, abdominal pain and bleeding from nose and gums.<sup>17</sup> Our study revealed that 66.0% of respondents thought fever and 55.2 % answered fatigue as the sign and symptoms of avian influenza, which is similar to the study conducted by Khan S. A et al as 53% stated fever as sign and symptoms.<sup>10</sup> The knowledge regarding clinical picture is comparatively low than mode of transmissions and preventive measures which may be well because the focus of health education is more on mode of transmission and preventive measures rather than clinical picture.

Preventive measures recommended by WHO included washing hands properly with soap and hot water before and after handling raw poultry.<sup>7</sup> In this study also majority of subjects (83.2 %) knew the importance of washing hands with soap and water which had been the main message in the campaign. This finding is line with studies in other countries which similarly found hand washing to be by far the best known practice for prevention of avian influenza.<sup>17,18</sup>

Poverty has a strong influence on health status and peoples of limited economic mean have fewer resources to pay for food, clothes and shelters. They are frequently unable to access or pay for health services. It is well that poverty, lack of basic education and health services, poor nutrition and inadequate living conditions all contribute to the spread of infectious diseases.<sup>19</sup> This present study revealed that literate subjects were more aware than illiterate. This could be because educated people are more exposed to mass media. Similar finding was also observed in a study

conducted by Alam M J et al where literacy had significant influence on awareness.<sup>12</sup>

This study revealed that males were significantly more aware than females, whereas in the study conducted by Marinos G et al in Greece in 2007 showed no relationship with gender.<sup>9</sup> This difference could be due to the fact that males usually had more interaction and socialization than females in our society. This holds particularly well for country such as Nepal where traditional norms and customs discriminate against females.

The study was conducted only among the subjects who were available at the time of study thus some level of selection bias could not be ruled out.

## CONCLUSION

This study provides information about awareness regarding preventive measures of avian influenza among adult people of Thimi Municipality. The overall awareness is quite satisfactory. However level of awareness was seen lower in female, illiterate and middle adult. So that along with large scale mass education program, there should be specific health education program for the specific group of population.

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