

Knowledge and Preventive Practices related to Avian Influenza among Poultry Workers of Kamalamai Municipality, Sindhuli, Nepal

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ABSTRACT

Background: Avian influenza (AI) is currently a threat to global health. Prevention and control of AI depends on the knowledge and preventive practices of the poultry workers as well as of general population. This study aims to assess knowledge and preventive practices related to AI among poultry workers.

Methods: Cross-sectional study was carried out among poultry workers of Kamalamai Municipality, Sindhuli. Data was collected from randomly selected 122 respondents through face-to-face interview. The collected data was entered in Epi-data version 3.1 and analyzed in terms of descriptive statistics (proportion, 95% CI, mean and standard deviation) by using SPSS, version 20. A scoring system was used to assess knowledge and preventive practices.

Results: Out of total, 93.4% (95% CI, 87.6- 96.6%) of the respondents had heard about AI. More than half (54.9%) of the respondents had poor knowledge on AI. Only 5.3% of respondents had good preventive practice against AI. 30.3% respondents had good knowledge and good practice and 24.6% had poor knowledge as well as poor practice. 20.5% of the respondents had good practice but poor knowledge, whereas, 24.6% had good knowledge but poor practice towards prevention.

Conclusions: The knowledge and practice of AI among poultry workers were low. The groups should be targeted for appropriate intervention based on whether they lack knowledge or practice or both.

Keywords: Avian influenza; knowledge; practice; Nepal.

INTRODUCTION

Avian influenza (AI) is currently a threat to global health.¹ Whether in its zoonotic, seasonal epidemic, or pandemic forms, it can lead to mild to severe illness, and death in poultry and human.^{2, 3} Prevention and control of AI depends on the knowledge and preventive practices of the poultry workers. Despite of the fact that Nepal experiences frequent outbreaks of AI, and poultry workers are at the frontline for disease susceptibility, very few studies have been conducted in Nepal to evaluate knowledge and preventive practices of the poultry workers. Additionally, appropriate preventive practice adopted by poultry workers is the key intervention to prevent transmission of the zoonoses to community.

A study done in Kathmandu among butchers revealed that nearly two-thirds (61.3%) of the respondents had a poor knowledge about AI. In the same study, more than half (55.4%) of the respondents displayed poor practice towards AI and none of the respondents had good knowledge or good practice.³ Although poultry farming is a popular occupation in Sindhuli district of Nepal, till date no study has been conducted to assess the knowledge and preventive practices of AI among poultry workers of Sindhuli. Thus this study aims to assess the knowledge and preventive practices related to AI among poultry workers of Kamalamai municipality, Sindhuli. In addition, this study will also find out the gap between knowledge and preventive practice.

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METHODS

Cross-sectional design was used to assess the knowledge and preventive practices among poultry workers in Kamalamai Municipality. The sampling list was obtained from District Livestock Services Office, Sindhuli. Considering the universe size (190 Poultry workers), maximum acceptable percentage points of error (5%), estimated prevalence level (50%) and desired confidence interval (95%); the sample size was calculated to be 127. Taking into account non response (5), the total sample size was 132. Thus; forty-four poultry farms were selected randomly by using lottery method. From each poultry farm, three respondents were interviewed. For those poultry farm with more than three poultry workers available at the time of data collection, three workers were selected randomly by using lottery method. On the day of data collection some respondents were absent so that only 122 poultry workers were interviewed. Poultry workers aged 15 years and above were interviewed by using semi-structured interview questionnaires in simple Nepali language.

The semi-structured questionnaire consisted of three parts, corresponding to socio-demographic information, questions related to knowledge of AI and questions related to preventive measures of AI. To check the clarity and relevance of the tools and to further refine the questionnaire and pre-empt pitfalls; the tools were pretested among 13 poultry workers of Shallaghari, Bhaktapur Districts. Such pre-tested questionnaires were not included in the final analysis.

The collected data was entered in Epi-data version 3.1 and analyzed in terms of descriptive statistics (proportion, 95% CI, mean and standard deviation) by using SPSS, version 20.

To assess knowledge and preventive practices, a scoring system was used whereby, each correct answer was given a score of 1 and each incorrect or 'do not know' answer scored 0. Thus, the maximum score for knowledge was 23, corresponding to 23 knowledge related questions. Levels of knowledge were categorized as 'poor knowledge (score 0-8)', 'average knowledge (score 9-16)' and 'good knowledge (score 17-23)'.¹ Safe working practice in the farm was indicated by the level of practice. Levels of practice were categorized as 'poor practice (score 0-6)', 'average practice (score 7-12)' and 'good practice (score 13-18)'.¹ The maximum score for practice was 18, corresponding to 18 practice related questions.

In order to meet the objective of finding out the gap between knowledge and preventive practice, mean and mean deviation for knowledge and practice

was calculated. We plotted the mean deviation for knowledge (X-axis) against mean deviation for practice (Y-axis) that resulted in four quadrants with following specific characteristics:

1st quadrant showed the proportion of respondents who had good knowledge and good practice, 2nd quadrant indicated the proportion of respondents who had good practice but poor knowledge, 3rd quadrant resembled to the proportion of respondents who had poor knowledge and poor practice and the 4th quadrant showed the proportion of respondents who had good knowledge but poor practice towards AI. (Figure 2)

Ethical clearance was taken from Ethical Review Board at Nepal Health Research Council (NHRC) before conducting the study. Voluntary participation in the study was explained to each of the respondent and verbal informed consent was taken from all participants before commencing the interview. The confidentiality and anonymity of the respondent was maintained.

RESULTS

Among 122 respondents, the majority of the respondents were aged between 30-50 years (57.4%) and male (56.6%). Almost all of the respondents were Hindus (92.6%), and of the total, half of them (50%) were Janjati. Majority of the participants (90.2%) were married and had nuclear family (80.3%). Only 19.7% had finished higher secondary or above. Only 9.8% of the participants had work experienced more than 5 years.

Knowledge of the respondents on AI (Table no. 1): The majority of the respondents 93.4% (95% CI, 87.6- 96.6%) had heard about AI. The main source of information was radio and television (64.9%). Most of the respondents (78.7%) were aware that birds were the most vulnerable animals for AI (see Table no. 1) but none of the respondents had knowledge about specific virus causing the disease. Majority of the respondents (74.1%) had correct knowledge on at least one sign and symptoms of AI in poultry. Similarly, 76.7% respondents were also aware about at least one preventive measures of AI. Regarding AI transmission to humans; 73.8% of the respondents mentioned that the disease can be transmitted to humans and 76.4% respondents had knowledge about at least one mode of transmission of AI in human beings. A high percentage of the respondents (98.4% and 90.2%) had no knowledge on the treatment and vaccine against AI respectively. (Table no.1)

As regards to knowledge level of respondents; more than half (54.9%) of the respondents had poor knowledge about the AI. Insignificant number (0.8%) of respondents

Table 1. Knowledge of the respondents about Avian Influenza.

Characteristics	%	
Animals mostly suffered from AI (n=114)	Aves	78.7
	Man	8.8
	Canine animals	0.7
	Pigs	0.7
	Don't know	11
Mode of transmission AI among poultry chickens (n=114)	Contact with infected wild birds	31
	Infected water, excreta, feeding products	21.5
	Poultry wastes	5.7
	Frequent contact with infected animals	4.4
	Used of Infected syringe	2.5
	Don't know.	30.4
Sign and Symptoms of AI in chickens (n=114)	From cold	4.4
	Sudden death	31.2
	Head becomes blue and lay down	13.8
	Red spots around the legs and body	10.1
	Hens may at first lay soft-shelled eggs, but soon stop laying	10.1
Others includes symptoms like fever, little food intake, dehydration	Others	9
	Don't know	25.9
Knowledge on Preventive measures (n=114)	Close and protected environment	25.9
	Avoid visitors come into the farm	25.9
	Do not accept new poultry into the farm	13.8
	Dispose the poultry waste in a protected way	9.5
	Clean the farmyard, the animal buildings, the equipment	1.1
	Information and suggestion should be taken from the DLSO	0.5
	Don't know	23.3
Mode of human transmission (n=90)	Direct contact with the infected aves	33.7
	Consuming infected poultry products	29.2
	Infected Stool	11.2
	From Air	2.2
	Don't know	23.6

had good knowledge. (Fig. 1)

Practice regarding preventive measures of AI (Table no. 2): majority of the respondents (98.6%) disposed their poultry waste in the proper disposal site through the methods of composting (i.e. 65.7%), burning (22.7%) and burying (11.6%). Nearly half (48.8%) of the respondents disposed their liquid waste in pit. Similarly, regular hand washing practice with soap and water was done by 81.8% and only 25.4% respondents washed their hand before entering the poultry farm but almost all (95.9%) washed their hand after visiting the farm. Regarding practice of

personal protective measures; this study found that 38.7% and 36.7 % of the respondents used antiseptic solvent and boot/ slippers respectively. Some of the participants used masks (15.7%), aprons/ separate clothes (4.7%) and gloves (4.3%) as their personal protective measures. The observation of the farm revealed that 95.9% and 97.5% of the total farm had separate placed to dispose the poultry waste and facility of soap and water

Table 2. Practice regarding preventive measures of Avian Influenza

Characteristics %

Place to dispose poultry waste (n=114)	Separate yard outside the farm	84.9
	Giving to the municipality waste collector	12.2
	Separate yard within the farm	1.4
	Near the river	0.7
	Public disposal site	0.7
Methods to disposed poultry waste (n=114)	Composting	65.7
	Burning	22.7
	Burying	11.6
Place to disposed poultry liquid waste (n=114)	Pit	48.8
	Dispose in field	43.3
	River	5.5
	Public places	2.4
Practice of personal protective measures (n=114)	Antiseptic solvent	38.7
	Boot/ Slippers	36.7
	Masks	15.7
	Aprons/ Separate clothes	4.7
	Gloves	4.3

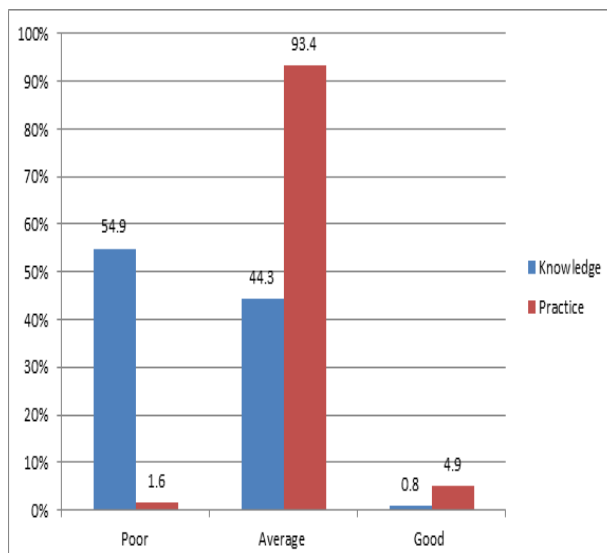


Fig. 1 Knowledge and practice level of the respondents

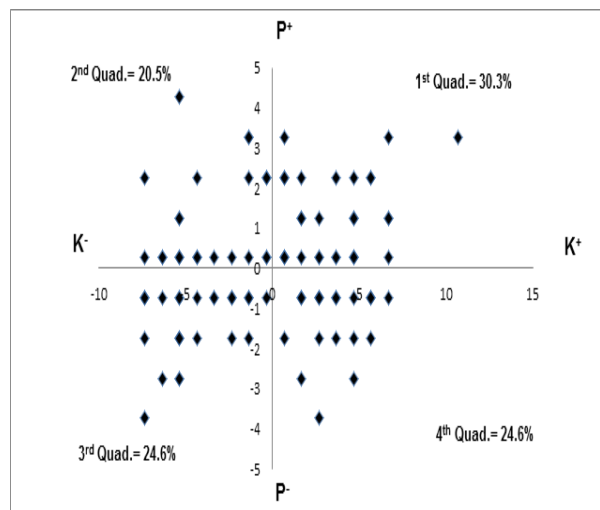


Figure 2. Gap between knowledge and preventive practice of AI

respectively, and the rest of the poultry lacked such facilities. (Table no. 2)

Regarding the practice level of the respondents, majority of them (93.4%) had average practice towards the preventives measures of AI. Insubstantial number of respondents had good practice (5.3%) and poor practice (1.6%). (Fig. 1)

The gap between knowledge about AI and preventive practice is shown in figure 2; 1st quadrant showed that 30.3% respondents had good knowledge and good practice, 2nd quadrant showed that 20.5% had good practice but poor knowledge, 3rd quadrant showed that 24.6% had poor knowledge and poor practice and 4th quadrant showed that 24.6% had good knowledge but poor practice towards AI. (Fig. 2)

DISCUSSION

Avian influenza is an impending threat to global public health. Influenza pandemics are unpredictable but recurring events that can have health, economic and social consequences worldwide.^{4, 5} Prevention and control depend on knowledge and preventive practices of the poultry workers and of general population.

Majority of the respondents (93.4%) had heard about the AI. Similar findings (i.e. 94.4%) were also observed in study from Nepal⁴ and Greece.⁶ The major sources of hearing about AI were radio and television (64.9%) and corresponding findings were also observed in study from Italy,⁷ Nepal,⁸ Karachi,⁹ Greece,⁶ and Egypt.¹⁰ This study showed that most of the respondents lack the knowledge that AI is caused by H5N1 virus, but other studies conducted in Nepal⁴ and Karachi⁹ showed that

94.4% and 70% of the respondents respectively knew that AI is a viral disease. The difference in the findings may be due to the fact that the question in this study was more specific and considered the name of virus too. The difference might have also occurred due to the fact that the study in Karachi was done among college students whereas this study included farm workers with comparatively lower educational status. As regards the mode of transmission in poultry; 65.2% knew at least one mode of transmission of AI in poultry. Similar result was also reported by different study from Nepal^{3, 4} and Egypt.¹¹ As for knowledge of signs and symptoms in poultry; majority of respondents (74.1%) knew about at least one sign and symptoms of AI in chickens which is similar with the study in Egypt.¹ The main route of human infection was through direct contact with infected poultry or with surfaces and objects contaminated by their droppings.⁵ Regarding mode of transmission of AI in humans; 73.8% of the respondents mentioned that the disease can be transmitted to humans and 76.4% respondents had knowledge about at least one mode of transmission of AI in human beings. On other hand, a study in Egypt reported that half of the respondents mentioned that the disease cannot be transmitted from person to person, about half (49.5%) of respondents indicated that AI is transmitted to humans through contact with sick birds and the remaining 0.5% didn't know about the mode of transmission.¹ In this study, almost all respondents (98.4% and 90.2%) were unknown about the treatment and vaccine against AI respectively and this finding resembles to the study in Egypt.¹

As regards to practice of preventive measures, washing hands properly with soap and hot water before and after handling raw poultry is the most important preventive measures as recommended by WHO.⁵ In this study, regular hand washing practice with water and soap was done by majority of the respondents. This finding is similar to other different studies from Egypt,¹ Nepal,⁴ and Nigeria.^{12, 13} This study found that a substantial number of the respondents were not following the recommended personal protective measures. Use of boot/slippers and antiseptic solvent was the most common precautionary measure according to the respondents. The practice about protective antiseptic solvent (38.7%) and boots/slippers (36.7%) was good. An important finding was that a smaller number of the respondents valued gloves and aprons as a protective measure. These findings about precautionary measures were similar to previous study findings from Nepal.^{3, 8}

CONCLUSIONS

The knowledge and practice on Avian Influenza among poultry workers were low. The respondents who had good knowledge and good practice on avian influenza should be encouraged with incentives to continue with their good practice. The respondents who had good practice but poor knowledge on avian influenza should be targeted for trainings and awareness program to enhance their knowledge. The respondents who had both poor knowledge as well as poor practice on AI should be the main focus of any intervention aiming to enhance the knowledge and practice on AI prevention. The knowledge of this group on AI can be enhanced by appropriate trainings and awareness program. Similarly behavior change program should be provided to enhance their practice on AI prevention. The respondents who have good knowledge but poor practice on AI should be targeted for behavior change program. Additionally, despite of the good knowledge this group has poor practice, thus, the barriers to good practice should be identified and addressed using locally appropriate behavior change communication.

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