

A Study on Awareness, Attitudes, and Practices Related To Avian Influenza among Poultry Workers in Dawakin Tofa Local Government, Kano State, Nigeria

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Abstract:

Introduction: Avian Influenza (H5N1) is a highly fatal, acute illness in animals and humans and people who are in close contact with poultry are at high risk for getting the infection.

Objectives: The aim of this study is to explore the existing awareness, attitude, and practice related to Avian Influenza among poultry workers in Dawakin Tofa local government in Nigeria.

Methods: The study was a descriptive cross-sectional study design, in which the data were collected using a structured questionnaire administered in face to face interview among the poultry workers in the selected poultry farms and live birds markets.

Results: A total of 196 poultry workers from 25 poultry farms and 3 live birds markets were interviewed. Their average age was 32.9 ± 8.5 , and the median duration of working experience was 6 years (range 1-25 years). Majority of the participants (95.9%) had been aware of Avian Influenza, and mass media being their primary source of information (80%). Awareness for modes of transmission and preventive practices varies among the respondents. Exploratory Factor Analysis revealed three factor structures in which, years of experience, age, marital status, and awareness scores falls in one component, whereas daily working time and level of education formed in another component, while attitudes and practices merged in a separate component. **Conclusion:** This study found that awareness and attitudes of avian influenza are good among the study participants possibly due to the previous public awareness campaign for preparedness and preventive measures against Avian Influenza in the country.

Keywords: Avian Influenza, Poultry workers, Attitudes, Awareness, Practices, Nigeria.

I. Introduction

The first Avian Influenza (H5N1) case reported in African countries was from Nigeria, where it occurred in a poultry farm in Kaduna state, one of the 36 states of Nigeria, in 2006(1-3). The epidemic continues to spread to other parts of the country and in 2007 Nigeria reported the first human case of Avian Influenza. Kano state in Nigeria experienced an epidemic of Highly Pathogenic Avian Influenza (bird flu) subtype H5N1 in three different years from 2006 to 2008, in which many poultry farms were affected, leaving heavy economic damage to farmers and the government(4).

At the time of epidemic period, 32 of the 36 state including the federal capital territory accounted a total of 1,654 suspected outbreaks cases, where 27 states and FCT reported 299 confirmed cases out of the 1,654 to be H5N1 positive (3:5). Avian Influenza virus remains a global problem for the poultry industry, looking at the fast outbreaks in the world (6).

In 1997 during a poultry epidemic of bird flu in Hong Kong SAR china, the first human case of H5N1 virus subtype a highly pathogenic Avian Influenza was reported (7:8). Since re-emergence in 2003 and 2004, "this avian virus has further spread throughout the globe and has become very difficult for poultry industry in some countries, causing millions of poultry infection, many human cases and human deaths" (4). The total cumulative confirmed human cases of Avian Influenza H5N1 reported from 2003 to 2013 were 468, out of which 282 deaths (9).

The present circulation of H5N1 in poultry, continues to create a problem to public health, as the disease agents have the ability to cause fatal disease in human at the same time may have the ability to change in to a form that is more easily transmissible among humans(10).

The concerned authorities are expected to provide public health strategic interventions planning and implementation for successful prevention and control of Avian Influenza (AI) (11).

A well structural plan was developed and is being implemented by world health organization (Avian influenza control programme) in 2006 responding to the epidemic, and to educate healthcare workers on diagnosis, detection and prevention of AI spread (11). People who are in close contact with infected poultry, such as families with backyard flocks and poultry workers in wet markets or live animal markets are at high risk for contracting AI infection.

The present study investigation is important, because members of the public often misunderstand their risk of health problems. Therefore, the objectives of this study are to assess the awareness, attitudes, and practices related to Avian Influenza among the high risk groups and to evaluate the effects of several demographic variables on such outcomes of interest in Dawakin Tofa Local government, Nigeria.

II. Materials And Methods

Study Design and Area

A Descriptive cross sectional study was conducted from 1st June to 30th of July 2014, in one of the local government in Nigeria. Dawakin Tofa local government, Kano state, is among the 774 Local Government Areas in Nigeria. The local government is located in the North-western region of the country on the coordinate 12°06'10"N 8°19'53"E. It has a total human population of 247,875 (12) and a land mass area of approximately 479 square Kilo metre. The local government bordered by Ungogo and Minjibir local governments to the northeast, Bichi and Bagwai LGAs to the west and Tofa LGA to the south. Poultry farming is one of the fastest growing sectors in the local government, and may experience the avian influenza outbreak like the previous years. This local government was selected due to its significant contribution in poultry farming in Kano state.

Poultry workers were selected to participate in the study due to their high risk and prolonged direct contact with poultry in the farms or live birds markets.

Study Variables

The study contained four domains mainly: Demographic and vital information, Awareness, Attitude and Practice measures. Demographic characteristics that we collected from the participants in the study are poultry workers age, level of education, years of working experience, daily working time and types of work in poultry industry. Awareness test domain focussed on collecting information on awareness of AI, source of information, modes of transmission, and preventive measures. While Attitudes test collected information pertaining to thought about AI whether is a serious and/or preventable disease, scores for fear of contracting AI among the study group. Practice measures test measured participants on preventive practice having choices in their response as always, sometimes and not at all.

Study Questionnaire

The data sources were measured using a structure questionnaire, obtained from a study on AI conducted in Italy and then modified to suit our study.

The final questionnaire had 18 questions covering information about the domains: demographic and vital information, awareness, attitudes, and practice measures.

Sample Size and Sampling Technique

A total sample size of 196 was calculated using $n = z^2 (pq) / d^2$.

Where: Z = Confidence interval, d= margin of error, p= Prevalence and q= 1 – prevalence.

Z=95% critical value 1.96, d=7% and p= 50%. 3 live birds markets and 25 poultry farms were selected using snow ball sampling technique; while convenient sampling was employed to select the participants from each farm and live birds markets.

Statistical Analysis

Data were obtained from the filled questionnaire and entered into computer using excel soft ware version 2007. The data were then imported into SPSS version 16; it was then cleaned and validated. Frequencies for all the variables were obtained; means and standard deviations were computed for the continuous variables. Awareness, attitudes, and practices scores were computed by addition of scores from the variables regarding to respective score. Multiple linear regression and exploratory factor analysis was employed to analyze the data.

III. Results

A total of 196 poultry workers were interviewed, with a range of 4 to 7 workers interviewed on each farm and 10 to 20 workers on live birds market. The average age of respondents was 32.9±8.5 years; 90% of the respondents were male. More than half the respondents were married, while the majority (89%) had attended at least a primary school Table 1.

Table 1. Demographic Characteristics

Variables	Frequency		n= 196 (%)
Gender	Male	176	90
	Female	20	10
Marital status	Married	103	52
	Single	80	41
	Others	13	7
Age distribution (years)	15 - 24	29	14.5
	25 - 34	85	43
	35 - 44	57	29
	45 - 54	24	12
	55 to above	1	0.5
Level of education	No formal education	22	11
	Primary	31	16
	Secondary	65	33
	High school	78	40

The median duration of work for the respondents was 6 years, with a range from 1 to 25 years. The most common types of poultry-related work performed by the respondents were feeding of poultry 96(49%), supervision 72(37%), collecting eggs 70(36%), sweeping/packing of poultry droppings 50(26%), sells and slaughter poultry 45(23%), guard poultry environment 24(12%). Nearly all the respondents 188(96%) had heard about avian influenza infection; with the majority 150(80%) reporting mass media (television, radio and newspapers) as their main source of information Table 2. Knowledge of transmission of the disease varied: (72%) knew that the disease could be transmitted from animal to human, and (82%) knew it could be transmitted from animal to animal, and through contact with saliva and secretion from infected bird's account (84%). Only (21%) suggested the possibility of human to human transmission. Regarding awareness of preventive measures, (97%) knew that washing hands with soap and water, (96%) knew wearing a facemask, (96%) hand glove, outer garment (67.9%), boots or boot covers (76%), and eye protection (66%) are measures that may prevent the spread of the disease. Other preventive measures reported by respondents were washing and disinfecting surfaces/body (90%). Multiple linear regression analysis of the total awareness score revealed that using mass media ($p = 0.009$), 95% (CI= 0.304 to 2.133), and years of experience ($p = 0.003$), 95% (CI=0.053 to 0.254), and daily working time ($p = 0.000$), 95% (CI= -0.332 to -0.096), they were all significant predictors of awareness Table 3.

The majority of respondents (69%) agreed that avian influenza is a serious and preventable disease. On a scale of 1 (no fear of getting disease) to 10 (fear of getting disease), the median rating of fear of getting the disease was 5 (range 1 to 10), (87%) had fear of Avian Influenza.

Table 2. Sources of information reported by poultry workers

Source of information	Frequency		n=188(%)
Mass media	150	80	
Health professional	87	46	
Employer	64	34	
Friend/Family member	27	14	

Regarding preventive practices, (80%) reported that they always wash their hands, whereas (66%) used facemask, (30%) used hand gloves, (30%) used boots or boot covers, while only (7%) used eye protection all the time. However, only (30%) reported wearing outer protective garments always.

Table 3: Multiple linear regression Model: Awareness score vs. independent variables

Variables	B	t	P – value
level of education	-0.050	-0.754	0.452
Years of working experience	0.187	3.003	0.003
Daily working time	-0.218	-3.581	<.050
Mass media (TV, radio, news etc)	0.151	2.630	0.009
Friends/family members	-0.014	-0.232	0.817
Employer	0.067	1.118	0.265
Health professionals	0.066	0.980	0.328
Constant	10.728	11.814	<.050

F = 17.96, P < 0.05, R² = 45%, adjusted R² = 42%.

The multiple linear regression analysis of the practice score showed that outer garment ($p = <0.050$), 95% (CI= -.90 to -.374), hand glove ($p = 0.001$), 95% (CI= -.731 to -.178), face mask ($p = 0.032$), 95% (CI= -.606 to -.027), boots and boots covers ($p = <0.050$), 95% (CI= -.853 to -.380), how often do you wash hands ($p = <0.050$), 95% (CI= -2.637 to - 1.638), how do you wash hand ($p = <0.050$), 95% (CI= 1.942 to 2.537) and how

often do you wash surfaces and utensil ($p < 0.050$), 95% (CI= -3.070 to -2.454) were all significantly associated with preventive practices measures against avian influenza infection Table 4.

Table 4. Multiple linear regression model: practices score vs. independent variables

Independent variables	B	t	P – value
Outer garment	-0.637	-4.781	<.050
Hand glove	-0.454	-3.781	0.001
Face mask	-0.316	-2.156	0.032
Boots and boots cover	-0.617	-5.154	<.050
How often do you wash hands	-2.138	-8.444	<.050
How do you wash hands	2.238	14.881	<.050
How often wash and disinfect surfaces and utensil	-2.762	-17.695	<.050
Constant	20.437	20.055	<.050

F = 125.446, P < 0.05, R² = 90.4%, adjusted R² = 89.6%.

Exploratory factor analysis was employed to explore the structure through summarization and data reduction, the variables included in the analysis are awareness scores, attitudes scores, practices scores, age, marital status, level of education, years of working experience and daily working hours. Principle components and varimax were used as extraction and rotation methods and 60% of variance was explained by the extracted factors (table 5).

Table 5. Exploratory factor analysis

Variables	Factors			Communalities
	1	2	3	Extraction
Years of working experience	0.810	-0.017	-0.145	0.448
Age	0.743	-0.333	-0.230	0.589
Marital status	0.670	0.155	-0.270	0.609
Awareness score	0.544	0.379	-0.091	0.716
Daily working time	0.154	-0.727	0.144	0.546
Level of education	0.272	0.663	-0.303	0.605
Attitudes score	0.089	0.091	0.757	0.678
Practice scores	0.230	0.358	0.654	0.573

Bartlett's chi square = 216.670 P < 0.05, KMO statistic = 0.532.

IV. Discussion

The finding from the data on poultry workers demographics showed that poultry workers were generally young adults and majority were male. This is consistent with the (13) study conducted on Knowledge, Attitude and Practice among poultry traders in Nigeria, who reported an average age of 30 years, (14) showed an average age of 29 years among the participants in the study of Knowledge, Attitudes and Compliance of poultry workers with the preventive measures for avian influenza in Nigeria.(15) Reported an average age of 40 years among samples of poultry workers who were assessed on their KAP with respect to avian influenza in Italy.

However this study found that many people are aware of AI, awareness of the infection, its modes of transmissions, and appropriate preventive measures was incomplete. This is similar to the findings of (14;16).

Though in the present study, level of education does not play major role in AI awareness, which is opposite to the study conducted by (14). But years of experiences and sources of information especially mass media found to be good predictors for awareness. This is agreed with the (14) study which reported mass media sources of information as predictor of Awareness of AI.

The findings of this study found that majority of the respondents felt afraid for contracting the infection. Most of the participants for this study said Avian Influenza is a serious and preventable disease, which is similar to the study (14).

In agreement with the findings of (14;15), wearing personal protective equipments was not a regular practice among the poultry workers. In multiple linear regression uses of outer garments, Hand gloves, Face mask, washing hands regularly, washing hands with soap and water or disinfectant, and washing and disinfecting surfaces and poultry equipments were found to play major roles in predicting practice among the study group. This finding is also similar to the study conducted in Italy (15) and study conducted in Nigeria (14) reported washing hands with soap and water was a good standard of preventive practice.

The present study findings of factor analysis shows that those poultry workers with high level of working experience, married and are at high age group tend to have higher level of Avian Influenza awareness, whereas those that have higher level of education showed less daily working activities in the poultry farms or live birds markets, while attitudes and practices goes together, poultry workers with good attitudes also have good practice of preventive measures.

One of the limitations of this study was the study setting which was imposed on the design of the current study. Most of the farms were not registered with the LGA Agriculture Department, as well as state ministry of agriculture, which is not possible to select poultry farms by simple random sampling. Which we planned that the sampling frame from the Agriculture Department would be the basis of our sampling process, but were forced to select poultry farms by “snowballing.” Records were not kept properly on many of the poultry farms and live bird markets visited; hence it was difficult to obtain a list of workers from which to recruit study participants. Also, as reported by other study conducted in one of the local government in Nigeria (14).

V. Conclusion

This study found that awareness and attitudes of avian influenza are good among the study group, whereas fair preventive practices was assessed among the same population, possibly due to the previous public awareness campaign for preparedness and preventive measures against Avian Influenza in the country. Effort should be made by the concerned authorities and institutions to further educate the poultry farmers regarding the endemic of AI and importance of using preventive practices in dealing with it.

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