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Assessment of Public Awareness on Common Zoonotic Diseases in Lalo Kile District, Kellem Wollega Zone, Ethiopia

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Abstract: A questionnaire based cross sectional survey was conducted to assess the awareness of the community about common zoonotic diseases in Lalo Kile District, Kellem Wollega Zone, Ethiopia. A total of 440 (292 male and 148 female) respondents were participated during the interview. A structured questionnaire was prepared and used to ask the respondents categorized into different levels about their knowledge and awareness on common zoonotic diseases in the area. From the total respondent category 82.50% have awareness on rabies, 81.82% have a concept about taeniasis, 81.36% know about bovine tuberculosis, 79.55% know about anthrax and 72.05% know about hydatidosis. These respondents have a concept about transmission, clinical signs, effect and way of control and prevention of the common zoonotic diseases. From the different category of the respondents, educational level and occupational status are statistically significant ($P<0.05$). 83.86% and 86.36% of the respondents consume raw meat and raw milk, respectively. Most of the respondents know that zoonotic diseases can be transmitted from animals to human, but very few of them know that the disease can be transmitted from human to animals. Therefore, the general continuous awareness creation and teaching of the community about zoonotic disease is very important.

Keywords: Awareness, Lalo Kile, Prevalence, Public, Zoonotic

1. Introduction

Zoonotic diseases are diseases that can be transmitted and distributed between animals harboring the disease and humans, and having different public health burdens and it is known that 75% of emerging pathogens fall within the category of zoonotic diseases [1]. These zoonotic diseases are widely distributed in Ethiopia and include bovine tuberculosis, taeniasis, hydatidosis [2], and rabies [3]. Many zoonotic diseases are caused by organisms such as bacteria, viruses, fungi, protozoa and other parasites, with both domestic and wild animals acting as reservoirs for the pathogens. Most of them cause health problems in human showing different clinical signs and if not treated may cause death [4].

People are mainly dependent on animals and animal products and they have very close relationship or contact with animals. They use raw animal products as source of feed that may predispose them to zoonotic diseases and different infections [5]. The large effect on human health and livelihood, many cases of illness and large amount of death every year, is caused by endemic zoonoses that are persistent health problems all over the world [6].

Zoonotic diseases can be transmitted in a different ways including air (aerosol), direct contact, contact with an inanimate object that harbors the disease, oral ingestion and insect transmission [7]. In both developing and developed countries, emergence of new zoonoses might be the result of either newly identified pathogens or agents that are already known, usually appearing in animal species in which the disease had not formerly been detected [8].

The public awareness and understanding in the public those having contact with animals and use animal product has received much attention now days and it is somewhat

helpful for reduction of transmission of zoonotic diseases. Hence, building of well-governed public health and animal health system, emphasizing the importance of cross-sectoral collaboration and coordination, abandon of traditional behaviors that can prone to zoonotic diseases and commitment of decision makers to obtain the necessary political, legal and financial support are required issues in minimizing of the impact of zoonotic diseases [2, 9-10]. In the area even though zoonotic diseases were widely observed, most people have contact with animals and consumes feed of animal origin including consumption of raw meat and raw milk. The objective of this study was to assess the awareness of the public on the common zoonotic diseases in the study area.

2. Materials and Methods

2.1. Study Area

The study was conducted in Lalo Kile District of Kellem Wollega Zone, Oromia Regional State, Ethiopia. The district is geographically found at 08°45' to 08°59' latitude and North of equator, and 035°26' East longitudes, and located at distance of 535 Km West of Addis Ababa. Altitude of the study area ranges from 500-1800 m. a. s. l., temperature ranges from 15°C (minimum) to 32°C (maximum) and has rainfall ranging from 1000ml to 1500ml [11].

2.2. Study Design

A cross-sectional study design using questionnaire and interview was used to assess the awareness of the public on zoonotic diseases such as tuberculosis, anthrax, hydatidosis, taeniasis and rabies from January, 2017 to May, 2017.

2.3. Study Population

The study populations were residents of Lalo Kile District of Kellem Wollega Zone, including those people who use foods of animal origin and also have contact with animals. The population of the district were 32,688 male and 33,710 female, totally 66,398 [12].

2.4. Study Methodology

A semi-structured questionnaire was used for the interview of the respondents to evaluate the awareness of the community about the common zoonotic disease using questionnaire translated to the local language of the study area, Afaan Oromoo. The questionnaire contained knowledge about zoonotic diseases, the way of their transmission and clinical signs they show. Also the respondents were interviewed if they have deep knowledge on common zoonotic diseases including rabies, tuberculosis, anthrax, brucellosis, hydatidosis and Taeniasis, and additionally their status on the consumption of raw meat and raw milk.

2.5. Data Collection

A total of 440 respondents were interviewed in face to face. A questionnaire which was semi-structured was prepared in English and translated in the local language of the community, Afaan Oromoo, containing different community based questions that can assess the levels of their awareness towards common bacterial and viral zoonotic diseases. Simple random sampling technique was used as a method of data collection to select respondents required for the interview purpose.

2.6. Data Analysis

The collected data were entered into Microsoft excel spread sheet and were analyzed using SPSS version 20. Frequency and percentage were taken by computing descriptive statistics. A Pearson Chi-Square test was used to evaluate the presence of statistical significance of difference in the study. A P-value <0.05 was considered as significant.

3. Results

3.1. Category of the Respondents

The respondents were randomly selected from the study area and they were categorized depending on (table 1) sex as male 292 (66.36%) and female 148 (33.64%); age as young 101 (22.95%), adult 215 (48.86%) and old 124 (28.18%); educational status or level as illiterate 97 (22.05%), read and write 33 (7.50%), elementary and high school 151 (34.32%), and college and university 159 (36.14%), and also occupation as farmers 129 (29.32%), health workers 18 (4.09%), student 152 (34.55%) and other professionals 141 (32.05%).

Table 1. *Category of the respondents in number and percentage.*

Criteria	Category	Number	Percentage (%)	P-value
Sex	Male	292	66.36	0.099
	Female	148	33.64	
Age	Young	101	22.95	0.020
	Adult	215	48.86	
	Old	124	28.18	
Educational status	Illiterate	97	22.05	0.000
	Read and Write	33	7.50	
	Elementary and High school	151	34.32	
	College and University	159	36.14	
Occupation	Farmers	129	29.32	0.000
	Health workers	18	4.09	
	Student	152	34.55	
	Other professionals	141	32.05	

3.2. The Overall Awareness of the Community on the Common Zoonotic Diseases

From all the respondents (table 2) 358 (81.36%), 350 (79.55%), 317 (72.05), 360 (81.82%) and 363 (82.50%) respondents have awareness on the bovine tuberculosis, anthrax, hydatidosis, taeniasis and rabies respectively.

Table 2. *The overall percentage of the community in the study area having awareness on the common zoonotic diseases.*

Common zoonotic diseases	Number of the community having awareness	Percentage (%)
Tuberculosis	358	81.36
Anthrax	350	79.55
Hydatidosis	317	72.05
Taeniasis	360	81.82
Rabies	363	82.50

3.3. Public Awareness About Bovine Tuberculosis

According to the study (table 3), 231 (79.11%) male respondents, 127 (85.81%) female respondents, 78 (77.23%) young age, 185 (85.05%) adult age, 95 (76.61%) old age, 58 (59.79%) illiterate respondents, 20 (60.61%) people those can read and write, 129 (85.43%) elementary and high school, 151 (94.97%) college and university respondents, 77 (59.69%) farmers, 18 (100%) health workers, 130 (85.53%) students and 133 (94.33%) other professional have awareness on the transmission, clinical signs and the general concept of tuberculosis. Most of them knew that bovine tuberculosis affect cattle and can be transmitted to human through inhalation and consumption of raw milk and meat.

Table 3. *Proportion of respondents having awareness about tuberculosis.*

Criteria	Category	Number having awareness	Percentage (%)	P-value
Sex	Male	231	79.11	0.088
	Female	127	85.81	
Age	Young	78	77.23	0.047
	Adult	185	85.05	
	Old	95	76.61	
Educational status	Illiterate	58	59.79	0.000
	Read and Write	20	60.61	
	Elementary and High school	129	85.43	
	College and University	151	94.97	
Occupation	Farmers	77	59.69	0.000
	Health workers	18	100	
	Student	130	85.53	
	Other professionals	133	94.33	

3.4. Public Awareness About Anthrax

Accordingly (table 4), 227 (77.74%) male respondents, 123 (83.11%) female respondents, 77 (76.24%) young age, 181 (84.19%) adult age, 92 (74.19%) old age, 56 (57.73%) illiterate respondents, 17 (51.52%) people those can read and write, 126 (83.44%) elementary and high school, 151 (94.97%) college and university respondents, 72 (55.81%) farmers, 18 (100%) health workers, 126 (82.89%) students and 135 (95.74%) other professional have awareness on the transmission, clinical signs and the general concept of Anthrax. They have gotten the awareness through mass media, radio, television, at school and through different information sources.

Table 4. *Proportion of respondents having awareness about anthrax.*

Criteria	Category	Number having awareness	Percentage (%)	P-value
Sex	Male	227	77.74	0.187
	Female	123	83.11	
Age	Young	77	76.24	0.058
	Adult	181	84.19	
	Old	92	74.19	
Educational status	Illiterate	56	57.73	0.000
	Read and Write	17	51.52	
	Elementary and High school	126	83.44	
	College and University	151	94.97	
Occupation	Farmers	72	55.81	0.000
	Health workers	18	100	
	Student	126	82.89	
	Other professionals	135	95.74	

3.5. Public Awareness About Hydatidosis

From the total respondents (table 5), 204 (69.86%) male respondents, 112 (75.68%) female respondents, 65 (64.36%) young age, 171 (79.53%) adult age, 80 (64.52%) old age, 47 (48.45%) illiterate respondents, 16 (48.48%) people those can read and write, 106 (70.02%) elementary and high school, 147 (92.45%) college and university respondents, 62

(48.06%) farmers, 18 (100%) health workers, 107 (70.36%) students and 130 (92.20%) other professional have awareness on the transmission, clinical signs and the general concept of hydatidosis, but most of them consumed raw meat.

Table 5. *Proportion of respondents having awareness about hydatidosis.*

Criteria	Category	Number having awareness	Percentage (%)	P-value
Sex	Male	204	69.86	0.200
	Female	112	75.68	
Age	Young	65	64.36	0.002
	Adult	171	79.53	
	Old	80	64.52	
Educational status	Illiterate	47	48.45	0.000
	Read and Write	16	48.48	
	Elementary and High school	106	70.02	
	College and University	147	92.45	
Occupation	Farmers	62	48.06	0.000
	Health workers	18	100	
	Student	107	70.36	
	Other professionals	130	92.20	

3.6. Public Awareness About Taeniasis

Among total respondents (table 6), 230 (78.77%) male respondents, 130 (87.84%) female respondents, 77 (76.24%) young age, 189 (87.91%) adult age, 94 (75.81%) old age, 58 (59.79%) illiterate respondents, 19 (57.58%) people those can read and write, 129 (85.43%) elementary and high school, 154 (96.86%) college and university respondents, 76 (58.91%) farmers, 18 (100%) health workers, 130 (85.53%) students and 136 (96.45%) other professional have awareness on the transmission, clinical signs and the general concept of taeniasis. Even though most of the respondents knew about taeniasis, consumption of raw meat was common in the community.

Table 6. *Proportion of respondents having awareness about taeniasis.*

Criteria	Category	Number having awareness	Percentage (%)	P-value
Sex	Male	230	78.77	0.020
	Female	130	87.84	
Age	Young	77	76.24	0.005
	Adult	189	87.91	
	Old	94	75.81	
Educational status	Illiterate	58	59.79	0.000
	Read and Write	19	57.58	
	Elementary and High school	129	85.43	
	College and University	154	96.86	
Occupation	Farmers	76	58.91	0.000
	Health workers	18	100	
	Students	130	85.53	
	Other professionals	136	96.45	

3.7. Public Awareness About Rabies

Of the total respondents (table 7), 234 (80.14%) male respondents, 128 (86.49%) female respondents, 79 (78.22%) young age, 188 (87.44%) adult age, 95 (76.61%) old age, 60 (61.86%) illiterate respondents, 19 (57.58%) people those can read and write, 129 (85.43%) elementary and high school, 154 (96.86%) college and university respondents, 78 (60.47%) farmers, 18 (100%) health workers, 130 (85.53%) students and 137 (97.16%) other professional have awareness on the transmission, clinical signs and the general concept of rabies. Most of them knew that rabies can be transmitted through dogs and other animals bite and madness as the clinical sign of the disease.

Table 7. *Proportion of respondents having awareness about rabies.*

Criteria	Category	Number having awareness	Percentage (%)	P-value
Sex	Male	234	80.14	0.099
	Female	128	86.49	
Age	Young	79	78.22	0.020
	Adult	188	87.44	
	Old	95	76.61	
Educational status	Illiterate	60	61.86	0.000
	Read and Write	19	57.58	
	Elementary and High school	129	85.43	
	College and University	154	96.86	

Criteria	Category	Number having awareness	Percentage (%)	P-value
Occupation	Farmers	78	60.47	0.000
	Health workers	18	100	
	Student	130	85.53	
	Other professionals	137	97.16	

4. Discussion

In the study area the awareness on zoonotic diseases were rabies (82.50%), taeniasis (81.82%) tuberculosis (81.36%), anthrax (79.55%) and hydatidosis (72.05%). This study showed that there was lower level of awareness on taeniasis and rabies as compared to the report of Tesfaye *et al*. (2013) [13] who reported 84.3% and 97.1%, repectively in Jimma, Southwestern Ethiopia.

The study revealed the higher level of public awareness on bovine tuberculosis as compared to the study done by Tesfaye *et al*. (2013) [13] who reported 29.1% in Jimma, Southwestern Ethiopia, and Bsrat *et al*. (2017) [14] who reported 49.50% in and Around Dodola Town, West Arsi Zone, Ethiopia; higher level of public awareness on anthrax as compared to the study done by Tesfaye *et al*. (2013) [13] who reported 55.4% in Jimma, Southwestern Ethiopia, and Bsrat *et al*. (2017) [14] who reported 50.8% in and around Dodola Town, West Arsi Zone, Ethiopia.

According to this study, there was high level of public awareness on taeniasis and rabies in relation to the report done by Bsrat *et al*. (2017) [14] who reported 53.10% and 68.8%, respectively in and around Dodola Town, West Arsi Zone, Ethiopia, and also high level of public awareness on rabies in relation to the report done by Tensay *et al*. (2017) [15] who reported 71.9% in Bishoftu, Ethiopia.

The percentage of respondents who consume raw meat and raw milk was higher as compared to the report done by Bsrat *et al*. (2017) [14] who reported 68.50% consumption of raw meat and 52.3% consumption of raw milk in and Around Dodola Town, West Arsi Zone, Ethiopia, and by Tesfaye *et al*. (2013) [13] who reported 66.8% consumption of raw milk in Jimma, Southwestern Ethiopia.

5. Conclusion

Zoonotic diseases are common diseases that need attention from the public in Ethiopia, especially in the study area. These diseases can be transmitted from animals to humans and vice versa in different ways including inhalation, ingestion or consumption of raw meat and milk, contact and other ways. They affects the health of the community and show different clinical signs, and sometimes death if not treated early. In this study, the awareness and knowledge of the community in the study area was assessed using questionnaire and interview. Accordingly, most of the respondents different status knew about the common zoonotic diseases. But some of some of them did not know about the common zoonotic diseases and some knowledge gap were observed. Therefore, continuous public awareness and teaching the community about zoonotic disease is very important.

Conflict of Interest

The author declares that there is no conflict of interest regarding this study.

References

[1] WHO, (2005). The Control of Neglected Zoonotic Diseases. Report of a Joint WHO/DFID-AHP Meeting with the participation of FAO and OIE. Geneva.

[2] Zewdie, W., Wario, E. and Tehetna, A. (2018). Assessment of Community Awareness on Common Zoonotic Disease in and around Yabello District of Oromia Regional State, Ethiopia. Multidisciplinary Advances in Veterinary Science, 2 (4): 388-394.

[3] Hasano, E., Zeynalova, S., Geleishvili, M., Maes, E., Tongren, E., Marshall, E., Banyard, A., Mcelhinney, L. M., Whatmore, A. M., Fooks, A. R. And Horton, D. L. (2018.) Assessing the impact of public education on a preventable zoonotic disease: rabies. Epidemiol. Infect. 146: 227-235.

[4] DEFRA, (2003). Department for Environment, Food and Rural Affairs. Zoonoses Report United Kingdom, London. Pp. 23-27.

[5] Ameni, G. and Erkihun, A. (2007). Bovine on small-scale dairy farms in Adama Town, Central Ethiopia and farmers awareness of the disease. Revue Scientifique ET Technique 26 (3): 711-719.

[6] ILRI, (2012). International Livestock and Research Institute. Mapping of poverty and Likely zoonoses hotspot. Department for international development, UK, Nairobi, Kenya. Pp. 73-82.

[7] Kevin, D. and Nancy, C. (2009). Zoonotic Diseases of Cattle. Virginia Cooperative Extension programs publication. Pp. 400-460.

[8] Davis, J. R. and Ledenberg, J. (2001). Emerging infectious diseases from the global to the local perspective. A Summary of a Workshop of the Forum on Emerging Infections. National Academy Press Washington, D. C.

[9] Swai ES., Schoonman, L. and Daborn, C. J. (2010). Knowledge and attitude towards zoonoses among animal health workers and livestock keepers in Arusha and Tanga, Tanzania. Tanzania Journal of Health Research, 12 (4): 280-286.

[10] Mosalagae D., Pfukenyi, D. M. and Matope, G. (2011). Milk producers` awareness of milk-borne zoonoses in selected smallholder and commercial dairy farms of Zimbabwe. Trop. Anim. Health Prod., 43 (3): 733-739.

[11] LKDAO, (2017). Lalo Kile District Agricultural Office. Annual Report.

[12] CSA, (2017). Central Statistical Agency. The Federal Democratic Republic of Ethiopia; central statistical agency, agricultural sample survey, 2016/17 (2009 E. C.), Volume II: Statistical Bulletin No. 585. CSA, Addis Ababa, Ethiopia. Pp. 107.

[13] Tesfaye, D., Fekede, D., Tigre, W., Regassa, A. and Fekadu, A. (2013). Perception of the public on common zoonotic diseases in Jimma, southwestern Ethiopia. International Journal of Medicine and Medical Science, 5 (6): 279-285.

[14] Bsrat, A., Gezmu, M. and Mekuria, A. (2017). Assessment of Community Knowledge, Attitude and Practice on Zoonotic Disease in and Around Dodola Town, West Arsi Zone, Ethiopia. Ethiopian Journal of Veterinary Science and Animal Production (EJVSAP), 1 (1): 57-65.

[15] Tensay, W. F. (2017). Household Knowledge, Attitudes and Practices Related to Pet Contact and Associated Zoonosis in Bishoftu, Ethiopia. Global Veterinaria, 18 (4): 277-285.