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Assessment of Community Awareness on Common Zoonotic Disease in and around Yabello District of Oromia regional State, Ethiopia.

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Abstract

A questioner survey was conducted to assess community awareness on common zoonotic disease in Yabello district, Southern Ethiopia. A total of 400 (230 males and 170 females) respondents were included. They interviewed using structured questionnaires. Majority of respondents (98.20%) heard about zoonosis and there sources of information was awareness created through extension (22.50%), followed by family and friends (13.50%) and mass media (12.50%). Regarding mode of transmission many of respondents (98.2%) knew rabies as a zoonotic disease contracted via the bite and contact with saliva of a rabid dog.

Out of (64.5%) respondents that know about anthrax (61%) knew the disease can be transmitted through ingestion whereas (0.7%) through contact with infected animal carcass and (2.8%) through contact and ingestion. Likewise, Taeniasis was known by (59.2%) of respondents as transmitted through ingestion, whereas only 36.2% of them knew tuberculosis can be transmitted from cattle to humans. However, Brucellosis and Toxoplasmosis were only recognized by (24.2%) and (12.2%) of respondents as transmitted through contact and ingestion, respectively. Majority of the respondents 96.5% and 66.2% knows consumption of raw meat and milk respectively can be a source of infection for zoonotic diseases; on the other hand (99%) and (89.8%) of the respondents consume raw meat and milk. Regarding, contact with infected material 119 (29.8%) of the respondents handle contaminated materials with their bare hand. However, 100% of the respondents believe that zoonotic disease have a negative impact on the community but not recognize the way of acquiring disease from animal to human. Therefore, continued awareness creation and educating community on way of transmission of zoonotic diseases is mandatory.

Keywords: *Awareness; Community; Transmission; Yabello; Zoonosis*

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Introduction

Zoonotic diseases are those diseases and infections that are naturally transmitted between vertebrate animals and humans with or without an arthropod intermediates. These zoonotic diseases represent of the leading causes of illness and death from infectious diseases (PAHO, 2001). The significance of zoonotic diseases is expanding and their health and socioeconomic impacts are increasingly being experienced by many countries, particularly in developing ones. In these countries, the establishment and implementation of adequate measures for livestock and consumer health protection against zoonosis, especially those that are new and emerging, has proven to be very difficult.

Thus zoonotic diseases continue to further burden public health systems as well as to undermine efforts to boost livestock production and exports (WHO, 2005). In most of the under developed and developing countries farming practices, low education level, culture and eating habits, presence of reservoir population, inadequate disease control program and lack of information about disease burden have been reported to be associated with persistence of zoonotic diseases (John., *et al*. 2007; Asbjer, 2009).

In rural parts of Ethiopia, people are mainly dependent on animals and their relationship with them is very close. People often consume raw animal products that may predispose them to zoonotic diseases like *Mycobacterium bovis* and Brucellosis infection (Ameni and Erkihun, 2007). Many parasitic zoonoses including cysticercosis, hydatidosis and fasclosis are common zoonoses widely present in Ethiopia (Ashwani, 2012).

Even though the government is practicing most disease control schemes including vaccination, organization of animal health camps, compensation to livestock owners for infected animals that are culled are not very feasible in most developing countries, mainly because of limited resources. Improving awareness among the livestock owners and proper disease diagnostic techniques could be helpful in prevention and control of zoonotic diseases. Hence, understanding about public awareness and practices of pastoralists or farmers has received much attention now days and it could be a useful tool in developing and improving existing control measures (Swai., *et al*. 2010; Mosalagae., *et al*. 2011). Therefore, the study was design to access community awareness on common zoonotic disease.

Materials And Methods

Study Area

The study was conducted in Yabello zone which is among the 17 zones of Oromia National Regional State in southern Ethiopia. Yabello is town and seat of administrative bodies of Borena zone (Figure 1). It is geographically found at 50 23’49 N 390 31’52 E, and located at distance of 565 km Southern of Addis Ababa (Coppcock, 1994).

Study Design

A cross-sectional study was conducted to assess the communities’ awareness level, attitude and the things they are practicing to prevent potential zoonotic diseases (rabies, tuberculosis, anthrax, brucellosis, toxoplasmosis, Taeniasis and echinococcosis).

Data Collection

A semi-structured questionnaire was designed in local language Afaan Oromo having the common socio-demographic characteristics and questions that can assess the levels of their awareness towards common zoonotic diseases transmission and prevention methods. The questioner was administered to 400 respondents in face to face interview.

Study Populations and data collection Techniques

The study populations were residents of Yabello town and its surrounding who has contact with animals and animal origin foods. The study units were selected using purposive sampling techniques based on their willingness to be included in the study; animal ownership/have contact with animal and consumption practice of animal origin foods.

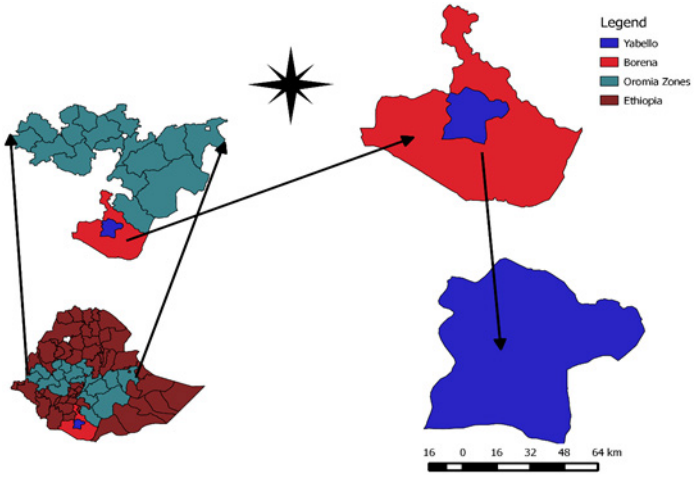

Figure 1: *Map of Study Area.*

Data Management and Analysis

The collected data were entered into Microsoft excel spread sheet and were analyzed using SPSS. Descriptive statistics were computed and expressed in terms of frequency and percentages.

Results

Most of respondents 134 (68.7%) were in the age groups of 17 to 34 years. Regarding education status the highest number of the respondents 230 (57.5%) were illiterate (pastoral community); 34 (8.5%) preparatory and college students; 54 (13.5%) health professionals and 82 (20.5%) graduates other than health professionals. Majority of the respondents 270 (80%) own more than one domestic animal.

Perception of the community regarding mode of transmission of the selected zoonotic diseases indicated in table 2. About 98.2% of the respondents were familiar that rabies can be transmitted from dogs to humans and the modes of transmission perceived by respondents were bites, contact with saliva, and ingestion. However, from the total respondents only 36.2% knew that tuberculosis can be transmitted from cattle to humans through consumption of raw milk. With regard to anthrax, the disease was known as a zoonotic disease transmitted to humans by 64.5% of respondents. The modes of transmission reported by respondents were consumption of raw meat from infected animal and through contact.

Brucellosis was known as disease of cattle that cause abortion in cattle and transmitted to humans by 24.2% of respondents whereas majority of the respondents 303 (75.8%) have no idea about the disease. Respondents having knowledge of Taeniasis as a zoonotic disease were 59.2% and also they know the disease can be transmitted through consumption of raw meat. The knowledge of the study population about toxoplasmosis was limited and only known by 12.2% of interviewed persons as a zoonotic disease that can transmit from cats to humans only by health professions graduates and other than health professionals' graduates know this disease.

Majority of respondents (98.5%) of present study knew that some animal diseases can also affect humans but small number of respondents (55.5%) aware transmission of diseases from human to animals and some respondents (18.5%) says no transmission from humans to animals and other respondents (26%) do not have idea whether can transmitted from human to animals. Regarding their perception of raw meat and milk consumption 386 (96.5%) and 265 (66.2%) of the respondents think zoonosis diseases can be transmitted by consuming raw meat and milk, respectively. In addition 277 (69.2%) of the respondents believe that zoonotic disease be prevented. Furthermore, all of the respondents agree with the idea of zoonotic disease have a negative impact on community (Table 3).

Variables	Number	%
Educational Status		
illiterate	230	57.5
preparatory and college students	34	8.5
health professionals	54	13.5
graduates other than health professionals	82	20.5
Occupational status		
Pastoralist	230	57.5
students	34	8.5
government employees	78	19.5
Self-employees	58	14.5
Animal they keep		
no animal	101	25.2
cattle	11	2.8
camel	6	1.5
shoat	2	0.5
dogs and cats		
more than one	280	70

Table 1: *Socio demographic characteristics of the study participants.*

Variables	Rabies	Bovine tuberculosis	Anthrax	Brucellosis	Taeniasis (cysticercusbovis)	Toxoplasmosis
Contact with animal	-	-	3 (0.7%)	24.2% (97)	-	-
Ingestion	6 (1.5%)	-	61% (244)	-	59.2% (237)	12.2% (49)
Bite	53.6% (215)	-	-	-	-	-
Inhalation	-	36.2% (145)	-	-	-	-
Spiritual	-	-	-	-	-	-
Ingestion + contact	-	-	2.8% (11)	-	-	-
Contact with saliva + bites	39.3% (157)	-	-	-	-	-
Ingestion + Contact with saliva + bites	3.8% (15)	-	-	-	-	-
No idea	7 (1.8%)	36.2 (63.8%)	145 (35.5%)	303 (75.8%)	40.8% (163)	87.8% (351)

Table 2: *Mode of transmission of common zoonotic diseases as perceived by the respondents of Yabello town.*

	Yes N (%)	No N (%)	I don't know N (%)
Do you think disease can be transmitted from animal to human?	394 (%)	6 (1.5%)	-
What about from human to animals?	222 (55.5)	74 (18.5)	104 (26)
Do you think zoonosis diseases can be transmitted by consuming raw meat?	386 (96.5)	14(3.5)	
Do you think zoonosis diseases can be transmitted by consuming raw milk?	265 (66.2)	135 (33.8)	
Can a person affected by zoonosis disease be treated?	286 (71.5)	114 (28.5)	
Do you think zoonosis can be prevented?	277 (69.2)	12 (330.8)	
Do you think zoonosis disease have a negative impact on community?	400 (100)		
	Yes N (%)	No N (%)	I don't know N (%)
Do you think disease can be transmitted from animal to human?	394 (%)	6(1.5%)	-
What about from human to animals?	222 (55.5)	74 (18.5)	104 (26)
Do you think zoonosis diseases can be transmitted by consuming raw meat?	386 (96.5)	14 (3.5)	
Do you think zoonosis diseases can be transmitted by consuming raw milk?	265 (66.2)	135(33.8)	
Can a person affected by zoonosis disease be treated?	286 (71.5)	114 (28.5)	
Do you think zoonosis can be prevented?	277 (69.2)	12 (330.8)	
Do you think zoonosis disease have a negative impact on community?	400 (100)		

Table 3: *Perception of respondents about common zoonotic diseases.*

Seven questions were concerning the practice of participants toward preventing zoonotic diseases in the questionnaire. Almost all 396(99%) of the respondents have the habit of consuming raw meat and majority of them practiced backyard slaughter in their home. In addition 359(89.8%) of them consume raw milk. From all respondents 13 + 39 + 117 (3.3 + 9.8 + 29.3%) provide programmed health care for their animals like vaccination and de-worming, etc. Regarding contact with infected material and disposal ways 119(29.8%) of the respondents handle contaminated materials such as feaces, placental membranes, aborted fetus, wounds & so on with their bare.

Variables	Frequency	%
Do you consume raw meat and/or meat products?		
1 = Yes	396	99
2 = No	4	1
Source of meat and meat products?		
1 = legal enterprises	162	40.5

3 = slaughtered at home	179	44.8
5 = legal enterprises + slaughtered at home	59	14.8
Do you consume raw milk?		
1 = Yes	359	89.8
2 = No	41	10.2
Do you provide your animal in animal health care?		
1 = Yes	393	98.2
2 = No	7	1.8
If your answer is yes, when do you provide?		
no	5	1.3
when animals become sick	193	48.3
3 = government order to treat with vaccine	33	8.3
How do you handle contaminated materials such as feaces, placental membranes, aborted fetus, wounds & so on?		

Table 4: *Practice assessment.*

Conclusion and Recommendations

The most frequently known zoonotic diseases among the respondents in the study area were rabies (98.2%), followed by anthrax (64.50%), Taeniasis (59.20%), bovine tuberculosis (36.20%), brucellosis (24.50%), and toxoplasmosis (12.20%). Majority of respondents (98.5%) of the present study knew that animal diseases can also affect humans. Among mode of transmission of zoonotic disease, respondents mentioned dog bite, ingestion, inhalation and contacts as common mode of transmission of zoonotic disease. Tesfaye., et al. (2013) also reported that higher proportion of respondents responded rabies due to dog bite (94.3%) and inhalation route and consumption of raw milk and meat as transmission routes of bovine tuberculosis from cattle to humans in Jimma, Southwestern Ethiopia. In conclusion, the public awareness about some common zoonotic diseases and their means of transmission, especially brucellosis, bovine tuberculosis and toxoplasmosis is very low. The levels of awareness about rabies, anthrax and teaniasis are in a good status but still improvements are needed. Moreover, the major source of information in the study area was extension awareness creation programs. Consumption of animal products like raw milk, meat common in study area. Therefore, awareness creation by collaboration of veterinarians and human health professionals should be encouraged in a wider coverage of different common zoonotic diseases transmission, control and prevention methods in Yabello district.

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