



Research Article

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The Role of Women in Livestock Management and Control of Tsetse and Trypanosomosis in the Southern Rift Valley of Ethiopia



Berisha kapitano^{1*}, Getahun Endale² and Bethelhem Korra³

^{1,3}National Institute for the Control and Eradication of Tsetse and Trypanosomosis

²Department of Biotechnology, School of Engineering and Technology, Sharda University, India.

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*Corresponding author: Berisha kapitano, National Institute for the Control and Eradication of Tsetse and Trypanosomosis, Hawassa, Ethiopia

Abstract

Animal trypanosomosis is the most economically important livestock disease in the study area responsible for high mortality, morbidity and impact on draft power. Women were the first victims of the problem as it affects livestock and force women to continue transporting goods and conduct farming activities with hand tools. A questionnaire survey was conducted to assess the awareness and participation of women in tsetse and trypanosomosis control in two districts. The majority of respondents in Amaro (86%) and Abaya (96%) were aware of animal trypanosomosis and 76% of the total respondents knew symptoms of the disease. Ninety four percent of respondents from Amaro and 97% from Abaya districts indicated that Trypanosomosis is the first priority and economically important disease in their locality. All respondents from both districts used Trypanocidal drugs and 70% of respondents from Abaya used indigenous methods in addition to trypanocides. According to the study the frequency of treatment in Amaro and Abaya districts were 5.6 and 7.9 times/animal/year respectively. In this study, the role of women in cattle management, knowledge of the disease, frequency of treatment and level of participation were different ($p < 0.05$) among the districts, requiring further awareness creation and technical backup to empower women and enhance their participation in similar programs for sustainable livestock development.

Keywords: Abaya; Amaro; Control; Livestock; Women; Trypanosomosis

Introduction

Tsetse transmitted trypanosomosis is the most economically important disease among others, causing severe economic loss through livestock morbidity, mortality, impaired fertility, high disease and vector control cost, and exclusion/denied access of the farming communities to the fertile and most suitable land for livestock and crop production (1). Women are the first victims of tsetse and trypanosomosis problem as it affects animals and force women to continue transporting goods and conduct farming activities with hand tools. They continue sharing high burden of rural poverty because of their vulnerable socio-economic position exacerbated by the disease (2). Various efforts have been made elsewhere in the country to alleviate the problem and enable utilization of much of the best-watered and most fertile land for livestock and crop production. Among these, Trypanocidal drugs were the most commonly used technique but were administered in many places by livestock keepers and/or unskilled personnel with minimal involvement of veterinary professionals (3).

Trypanocidal drugs have been indiscriminately used for various diseases contributing to the development of drug resistance. This has shifted the attention of the scientific community, government and the community to focus on vector control as the best option of tsetse and trypanosomosis intervention strategy. Although men play major role in the vector control programs, women make substantial contribution to tsetse and trypanosomosis control programs. However, the level of participation of men and women varies and requires further investigation to empower women and enable them to actively participate in tsetse and trypanosomosis control programs (STEP report, 2014). Therefore, the study was aimed to assess the awareness of women and their role in control of tsetse and trypanosomosis.

Materials and Methods

a. Description of the Study Area

The study was conducted in Amaro and Abaya districts representing farming and pastoral communities respectively.

The vegetation of both districts was dominated by wooded grassland, thickets and remnants of riparian vegetation with extensive cultivation in Amaro district. The study areas had an altitude ranging from 1318 to 1418 meters in Amaro and 500 to 1235 meters above the sea level in Abaya districts. The annual temperature ranges from 17°C to 38°C in Amaro and 23°C to 42°C in Abaya districts with an annual rain fall ranging from 735 to 1200mm in Amaro and 500 to 870mm in Abaya districts. The main livestock health problems in the districts were Trypanosomosis followed by other different diseases including blackleg, anthrax, pasteurelosis, respiratory diseases, and internal and external parasites (STEP report, 2014).

b. Study Design

The study was conducted from June to August 2016 using a questionnaire survey focusing on cattle. One hundred eighty households (90 from Amaro and 90 from Abaya districts)

were selected systematically where every other house was considered until 90 households were included from each district. One day training with rehearsal session was organized for enumerators to ensure that they properly understood the questionnaire and can do the job correctly. The questionnaire was administered by interviewing women (wives) of the selected house or next house in the absence of woman in the selected house.

c. Data Analysis

The collected data was entered into MS Excel spreadsheet and summarized descriptively. Accordingly, proportion, mean and frequency were computed. The mean difference between the two districts was analyzed using t-statistics and significant difference tested at $p < 0.05$. The result was presented in Tables to demonstrate the findings across the districts.

Results and Discussion

a) Major Economic Activities in the Districts

Table 1: Major Farming Activities in the Selected Districts

Means of Economic Income	Amaro		Abaya	
	No	%	No	%
Crop farming alone	12	13.3	0	0
Livestock farming alone	5	5.6	85	94.5
Mixed farming	71	78.9	3	3.3
Others (fishing, charcoal, business, employment, etc.)	2	2.2	2	2.2
Total	90	100	90	100

The present study showed that the main farming system in Amaro district is sedentary while the community in Abaya district is mainly pastoralists engaged in livestock keeping than other economic activities. Most of the respondents in Amaro (78.9%) and Abaya (94.5%) districts have indicated that they were mainly involved in mixed and livestock farming respectively (Table 1). Thus, the difference between the districts is statistically significant ($P < 0.05$). Although

information on similar studies on the districts are not available the findings of the current report agrees with STEP report (2014). Apart from livestock keeping, crop farming in Abaya district could be significantly improved through proper implementation of the pastoral areas development strategy (GTP1 document (2010), which was planned to create a settled community which would enable women to be highly engaged in various economic activities.

b) The Role of Women in Cattle Management in the Districts

Table 2: The Role of Women in Livestock Management

Activities	Amaro District								Abaya District							
	Children		Wife		Husband		Others		Children		Wife		Husband		Others	
	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Feeding	31	34	30	33	26	29	2	2.2	25	28	31	34	32	36	2	2.2
Cleaning	25	28	50	54	18	17	1	1.1	23	26	58	54	32	17	3	3.3
Milking	13	14	64	71	12	13	1	1.1	11	12	65	72	12	13	2	2.2
Health control	18	20	21	23	50	56	1	1.1	13	14	25	28	52	58	0	0.0
Marketing	5	6	19	21	65	72	1	1.1	7	8	14	16	69	77	0	0.0

All respondents in both districts indicated that cattle play a prominent role in rural agriculture providing milk, meat and cash income in both districts, and draft power and manure in Amaro district. According to the study women had a

significant role in cattle management consisting of milking, cleaning and feeding with minimal participation in livestock health control and marketing in both districts (Table 2), with significant difference ($P < 0.05$) among the districts. Women

play a significant role in marketing milk, meat and other products and byproducts, while marketing of live animals was completely the responsibility of men which is in line with SOFA Team2 and Cheryl Doss (2011) and IFAD (2011) who

also indicated a varying women's role from very low to very high level. This requires creation of awareness; mobilization and strengthened extension services to empower women to participate in livestock management.

c) Major Cattle Constraints in the Districts

Table 3a: Major Livestock Problems in the Study Districts

List of Problems	Amaro District		Abaya District		Total	
	No	%	No	%	No	%
Disease	63	70	72	80	135	75
Shortage of pasture	46	51	68	76	114	63
Drug shortage	43	48	67	74	110	61
High price of drugs	35	39	73	81	108	60
Drought/rain shortage	38	42	64	71	102	57
Shortage of water	32	36	45	50	77	43
Poor veterinary services	38	42	21	23	59	33
Low price of products	10	11	35	39	45	25
Poor human health	9	10	21	23	30	17
Draught animal shortage	27	30	0	0	27	15
Lack of disease knowledge	7	8	9	10	16	9
Improved breeds shortage	12	13	0	0	12	7
Shortage of labour	2	2.2	0	0	2	1
Lack of funds	2	2	0	0	2	1

Table 3b: Important Livestock Diseases in the Districts

List of Livestock Diseases	Amaro District		Abaya District		Total	
	No	%	No	%	No	%
Trypanosomosis	85	94	87	97	172	96
Ectoparasite	78	87	82	91	160	89
Internal parasite	56	62	61	68	117	65
Black leg	45	50	56	62	101	56
Pasteurellosis	34	38	55	61	89	49
CBPP	35	39	53	59	88	49
Anthrax	38	42	47	52	85	47
Sarcoptosis	32	36	47	52	79	44
Mange mite infection	35	39	37	41	72	40
FMD	12	13	21	23	33	18
Lumpy Skin Diseases	12	13	20	22	35	20
Brucellosis	3	3.3	2	2.2	5	2.8
Tuberculosis	2	2.2	0	0	2	1.1

The present study had identified five top priority cattle problems including livestock diseases, shortage of pasture, drug shortage, high cost of drugs and drought (rain shortage). Other problems included shortage of water, inadequate veterinary service, market problem, low prices of products, lack of disease knowledge, shortage of draught animals, poor human health, and shortage of labor and lack of funds. Overall, 75% of the respondents (70% in Amaro and 80% in Abaya districts) indicated that diseases were the most

important constraint for livestock development (Table 3a) with a significant difference ($p < 0.05$) between the districts. As indicated in (Table 3b), almost all respondents in Amaro (94%) and Abaya (97%) districts reported Trypanosomosis as the first priority disease of economic importance followed by ectoparasites particularly tick infestation, internal parasites, blackleg and others, which does not vary ($P > 0.05$) among the districts. This is in agreement with similar reports of (3,5-7), who reported trypanosomosis as the primary constraint

to livestock production. Remarkable efforts have been made by the Southern Tsetse Eradication Project (STEP) but interruption of the program resulted only temporary relief due to reinvasion of the cleared areas. This requires a strategy employing a systematic use of resource including women to be the part of the program to create areas sustainably free from the problem for sustainable livestock and crop development.

d) Awareness of Women on the Symptoms and Impact of Trypanosomosis

The majority of respondents in Amaro (86%) and Abaya (96%) districts were aware of animal trypanosomosis where 29% (19% in Amaro and 40% in Abaya) knew symptoms of the disease and 12% (13% in Amaro and 10% in Abaya) knew tsetse flies as the vector of trypanosomosis, while some said biting flies, ticks, waterborne and unknown source (Table 4), which is statistically different ($p < 0.05$) among the

districts. The symptoms described by the respondents were staring hair coat, progressive emaciation, bleeding from ear and body, lacrymation, weakness, poor appetite, reduction of milk production and poor body condition which are universal indicative signs of trypanosomosis. As shown in Table 4, almost all respondents (92%) in Amaro indicated that the impact of animal trypanosomosis includes loss of draft power while respondents in both districts indicated reduced milk yield, high treatment cost, death of untreated animals, high replacement cost, low market price due to poor body condition and abortion, which is in line with (4). Supporting the findings of STEP (2014), the present study revealed low level of knowledge of women where most disease symptoms were considered as trypanosomosis and treated accordingly, which needs empowerment of women in the identification of different livestock diseases.

Table 4: Awareness of Women and Impact of Trypanosomosis on Livestock Development

Type of Awareness and Impact of Trypanosomosis	Amaro District		Abaya District		Total	
	No	%	No	%	No	%
Not aware of trypanosomosis	13	14	5	6	18	10
Not aware of tsetse flies	78	87	81	90	159	88
Aware of trypanosomosis	77	86	86	96	163	91
Aware of symptoms of the disease	17	19	36	40	53	29
Aware of tsetse flies	12	13	9	10	21	12
Reduce milk production	45	50	71	79	116	64
Loss of draft power	83	92	0	0	83	46
High treatment cost	71	79	88	98	159	88
Death of untreated animals	69	77	90	100	159	88
High replacement cost	58	64	56	62	114	63
Low market price	47	52	45	50	92	51
Abortion	23	26	31	34	54	30

e) Methods of Tsetse and Trypanosomosis Control in the Districts

Table 5: Methods of Trypanosomosis and Vector Control

Type of Control Methods	Amaro District		Abaya District		Total	
	No	%	No	%	No	%
Trypanocidal drugs	90	100	90	100	180	100
Vector control techniques	33	37	15	17	48	53
Indigenous /cultural methods	7	8	63	70	70	78

All respondents (100%) in both districts stated that the most commonly used method of trypanosomosis control was treatment with trypanocidal drugs (Table 5), which were administered mainly by none professionals including livestock owners followed by veterinary extension workers without difference ($P > 0.05$) between the districts. According to the study, Deminazene Aceturate, Isomethamedium chloride and Homidium salts were the most commonly used drugs, with no significant difference ($P > 0.05$) between the districts. This is in agreement with (3-5), According to Table 5, small proportion

of respondents in Amaro (37%) and Abaya (17%) were aware of vector control techniques consisting of traps, insecticide impregnated targets, pour-on, ground spray and Sequential Aerosol Technique, while the remaining high proportion of women does not have the information which is statistically different ($p < 0.05$) among the districts. Most women in Abaya (70%) knew indigenous methods for trypanosomosis control which was not reported by respondents from Amaro district. The respondents also indicated that the frequency of animal treatment in Amaro and Abaya districts were 5.6 and 7.9

times/animal/year respectively, which is comparable to the findings of (3) with significant difference ($P < 0.05$) between the districts.

f) Participation of Women in Tsetse and Trypanosomosis Control in The Districts

The present study showed that substantial number of women have participated and willing to participate in tsetse and trypanosomosis control conducted by Southern Tsetse Eradication Project in both districts. However, their participation was affected by different factors consisting of nature of the work, burden of responsibilities, socio-cultural

factor, economic factor, biological factor and reproductive factors. Despite these factors, they managed to participate by labor, taking care of devices when they go for firewood collection, bringing animals for insecticide spray and treatment, and supervision and communication, which agrees with (3). Overall, 9% of respondents (6% in Amaro and 12% in Abaya) have managed to treat sick animals on their own but none of them have participated in tsetse control activities (Table 6), with significant difference ($P < 0.05$) among the districts. This requires further effort to empower women to significantly participate on similar activities and contribute to sustainable livestock development in their area.

Table 6: Participation of Women in Tsetse and Trypanosomosis Control Programs

Activities	Amaro District		Abaya District		Total	
	No	%	No	%	No	%
Labor contribution	24	27	11	12	35	19
Supervision and maintenance of different devices	17	19	9	10	26	14
Bring animals for insecticide application and drug treatment	55	61	68	76	123	68
Participate on tsetse control	21	23	2	2	23	13
Participate on disease control	2	2	7	8	9	5
Conduct tsetse control on their own	0	0	0	0	0	0
Conduct disease control on their own	5	6	11	12	16	9
Communication and reporting	74	82	84	93	158	88

Conclusion

The current study showed an encouraging result in relation to the knowledge and role of women in cattle management and participation in tsetse and trypanosomosis control. Most of the respondents indicated that they were aware of livestock constraints, major diseases, control methods and the level of their participation. According to the study the role of women was diverse and varies in extent among the districts but the knowledge, participation and willingness to be engaged in similar programs were very much encouraging. However, further awareness creation and technical backup is required to empower women to be significantly engaged in similar programs and also make benefit mapping through precise assessment of generated benefits linked to appropriate and sustainable livestock development plan. The cattle breeds in the study areas were east African zebu which is less productive requiring further work of breed improvement in both districts.

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