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Retrospective Study Of Livestock Morbidity And Mortality In Benishangul Gumuz Region, Ethiopia.

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ABSTRACT: Survey was conducted on retrospective and animal health problems in the 16 kebeles of Bambasi, Menge, Ura, Wombera and Dangur districts in Benishangul Gumuz regional state, with the objectives to identify the main constraints related with livestock production and cause morbidity, mortality and associated risk factors. In this survey, the demographic features of respondents were assessed and 9.2%, 6.50%, 7.36%, 5.85% and 26.95% of relative mortality rate were recorded in Cattle, Sheep, Goat, equine and poultry respectively in six woredas (16 kebeles) of study sites. The highest and lowest (26.95%) and (5.85%) crude mortality rates were recorded in poultry and equine (donkey) respectively. Without poultry, overall crude mortality rates were 7.22%. 11.67%, 15.06%, and 4.67% of relative young mortality rate were recorded in Calf, sheep lamb, and goat kid respectively in five woredas (16 kebeles) of study sites. So, overall 10.09 % of young crude mortality rate was recorded. Respondents of livestock owners indicated that , the highest morbidity rates were Trypanosomosis (20.95%) , NCD(16.16%), CBPP(10.97%), pneumonia(10.77%), avian salmonella(10.17%), Bovine pastuerellosis (9.98%), while the lowest morbidity rates were CCPP(4.69%), Shoat pox (5.28%), equine pneumonia(5.68%), ovine pasteurellosis (5.28%). In study areas, unappropriate treatment, irregular vaccination schedule, less monitoring system, and weak disease surveillance were the main gaps identified. Therefore, strategic prevention and control measures should be implemented properly in study areas so as to reduce the problems encountered.
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1. INTRODUCTION

Livestock in Ethiopia has been recognized as one of the most important sectors in subsistence agriculture in the quest to attain food security and good welfare (Fikre Z, 2016). Livestock is an integral part of agriculture in Ethiopia, and its contribution to the economy accounts for about 19% of GDP and 20% of export earnings (Behnke and Metaferia, 2011). The contribution of the livestock sector to the livelihoods of producers in particular and to the national economy in general can be explained in terms of food production, supply of inputs and services for crop production, raw material for agro-industry, cash income and export earning, savings and investment, and its role as a generator of employment (Behnke and Metaferia, 2011).

Most people in rural areas of these countries depend on agriculture sector for their livelihood, which plays a great role in the socio-economic development. Despite the large number of livestock, in general productivity is low, mainly due to the low genetic quality of local breeds, poor nutrition, and animal health problems. Similar to low-income African countries, per capita consumption of food from a livestock origin is low, mainly due to uncontrolled animal diseases, poor husbandry, and poor infrastructure (Ayele *et al.*, 2003; Negassa *et al.*, 2011). The livestock industry success depends on the good health and managements of the animals that helps to increase the productivity; whereas any compromise on the health ground will shelter the hope of livestock sector (Bangar, 2013).

The infectious diseases of livestock remain a major threat to attaining food security and are a source of economic and livelihood losses for people dependent on this sector for their livelihood. Knowledge of the major infectious diseases that causes majority of deaths in general in our country the most crucial in determining disease control strategies and in the allocation of limited resources available for disease control program. Benishangul-Gumuz Regional State, which found in the North-western part of the country, has favorable agro-climatic condition in its all part and suitable for animal raring. In other way, common animal diseases such as Trypanosomosis, internal parasites and external parasites and several infectious diseases (CBPP, PPR, FMD) occurs in outbreak forms hiders

overall effort made to develop livestock sector and improve the life of farmers in region.

The study conducted on morbidity and mortality in cattle covering 7(seven) districts of Benishangul Gumuz Region and reported that the overall morbidity and mortality rate in cattle, sheep, goat and equine was 21.46%, 22.1%, 22.52% and 6.75% respectively (Asmamaw *et al.,* 2017). The study on morbidity and mortality rates provides important information to determine the health status of livestock and improve livestock production and productivity.

1.1. OBJECTIVE

- To assess the livestock morbidity and mortality rate
- To identify the major cause of morbidity and mortality of livestock in the study area.
- To understand the risk factors and season of livestock death in the region.

2. RESEARCH METHODOLOGY

2.1. Description of Study Area

Benishangul Gumuz Regional state is situated in western part of Ethiopia, between 090 17'-12.06" N latitude and 340 10'-37.4'' E longitude. The average annual temperature is 16-39 0c; its annual rain fall is 650 – 1,900 mm. The region covers a total area of 5,033, 592 hectar /50,380 Km2 or 4.4 % total of the country. From the country's total 1,128, 176 Km^2, Benishangul Gumuz Regional state covers 4.44% of land area, with altitude ranges from 580 – 3300 m.a.s.l. The topography of the region has 75% low land/kola/ (below 1,500 m.a.s.l), 24% mid land /weina dega/ 1,500 – 2,500 m.a.s.l), and 1% high land /dega/ (cover over 2,500 m.a.s.l) (FITCA, 2003). The livestock population of the region is 538,616 cattle, 585,790 sheep and Goat, 358,928 equines and 1,007,071 poultry found in the region based on 2022/23 regional livestock counting. The present retrospective survey were covers 5 districts from the 3-administrative zone. Namely: Bambasi, Oura, and Menge from Assosa zone, Dangur and Wombera from Metkele zone and Zaye from Kamashi zone.

Map 1. Map showing the study area.

2.2. Target and Study Population

The target population for this study were all livestock i.e. cattle, Sheep, Goat, equine and poultry kept in Benishangul Gumuz region. The study population will be livestock kept in all 5 districts selected from the study area. The sampling population was all livestock in the randomly selected 16 Kebeles from each study district.

2.2. Sample Size Determinant

The sample size was estimated using the method described by (Thrusfield, 2018). Accordingly, based on the study conducted on morbidity and mortality rate of livestock in Benishangul Gumuz Region the mortality rate of livestock was reported as cattle 7.27%, sheep 7.8%, goat 11.95%, equine 4.21% and poultry 16.19% (Asmamaw *et al.,* 2023) and the average mortality rate for cattle, sheep goat and

equine was **7.80%.** Then, sample size was calculated based on Thrusfield formula:

$$n = \frac{1.96^2 \times exp(1-exp)}{d^2}$$

$$n = \frac{1.96^2 \times 0.078\ (1-0.078)}{0.05^2}$$

The sample size for present study calculated to be 110 livestock owners for interview.

2.3. Study Design and Sampling Methods

The retrospective study design was applied to identify livestock mortality rate, cause of morbidity and mortality, risk factors, season of livestock death and economic impact due to death and treatment cost of livestock within the period of July 2023 to May 2024. The combination of Stratified sampling, multistage random sampling method will be used to attain true representative of the target population in the region. Accordingly, the region will be stratified based on Zonal administrative category. Then, each zonal administrative were clustered into two categories i.e. Categories of more populated districts and less populated districts with livestock. Thus, the study district selected with simple random sampling method from each cluster. Also, each sampling Kebele from selected district will be chosen with simple random sampling method. Finally, the house hold /interviewee/ will be selected based on simple random sampling method for individual interview. But if the randomly chosen house hold probably has no livestock, should be excluded reasonably and substituted with the neighborhood house hold.

2.4. Sampling Procedure

The study will address all the randomly selected households in the study area. The study districts will be selected randomly at regional level before the mobilization to the filed study. While, selection of Kebeles, and interviewee for sampling will be carried out at each district and Kebeles respectively. Therefore, the total sample size will be equally divided to sampling districts and 10% of Kebeles from each sampling district will be selected for sampling. Accordingly, a total of 18 Kebeles 4, 2, 4, 3, 3, Kebeles from Bambasi, Menge, Ura, Wombera and Dangur respectively. Finally, the interviewers will give a brief to all household under interview about the procedure and the goal of the research and provoke them to be honest and give un biased data.

2.5. Data Management and Analysis

All necessary data concerning livestock morbidity and mortality from July 2023 to May 2024 will be collected from each livestock owners /interviewee/ as primary data and from case books and reports as a secondary data source. Recorded data will be entered, stored and coded in Microsoft Excel spreadsheet. Descriptive and inferential statistics will be used to determine major livestock morbidity and mortality rate. The finding will be expressed using tables, graphs and charts.

2.6. Ethical approval

The data collection from livestock owner will be conducted under strict ethical way. Therefore, permission to collect data and Kebele selection will be carried out in front of each district agricultural office head or animal health team leader. Individual interview person selection will be done with the help of Kebele Agriculture office head and animal health technician at each Kebele.

3. RESULT

3.1 Questionnaire Survey with Livestock Owner

Table 1: Demographic features of respondents

Respondents	Categories	Frequency	Response rate (n=101, %)	CHI2	P –Value
Sex	Male	84	83.16	10.06	0.039
	Female	17	16.83		
Education level	Illiterate	33	32.67	32.88	0.008
	1-4	31	30.69		
	5-8	18	17.82		
	9-12	13	12.87		
	above	6	5.94		
Age	15-29 years	18	17.83	14.08	0.08
	30-64 years	65	64.35		
	>64 years	18	17.82		
Marital status	married	83	82.17	4.26	0.039
	single	18	17.82		

As *Table 1* indicated, from 101 respondent livestock owners in five woredas (16 kebeles), 83.2 % were male respondent whereas 16.83% were females. Of 101 respondent participants', 32.67%, 30.69%, 17.82%, 12.87% and 5.94% of the education level categories were illiterate, 1-4, 5-8 and 8-12 grade and Diploma /above/ respectively during the assessment of the study. Of these 101 study respondents' age categories, majority (64.35%) of participants were 30-64 years old while the lowest (17.82 %) were 64 years old.

Table 2: What are the most important constraints and difficulties that prevent achieving the best results from stock farming?

Constraints	Woredas					Response rate	
	Bambasi	Ura	Meng	Dangur	Wombera	(n=210)	%
Lack of feed and shortage of water	42	19	16	21	17	127	60.47
Cost of drugs	32	21	17	16	11	111	52.85
Lack of remedy and drug availability	40	25	18	20	26	146	69.52
Disease alerts, outbreak	49	32	19	10	18	139	66.2
Management problems	11	9	5	5	3	39	18.6
Lack of treatment	11	19	16	9	18	96	45.71
un- response to treated animals	15	16	11	10	9	70	33.3

As *Table 2* indicated; with regard to constraints for stock farming, the highest (69.52%) and 66.2% of the respondents were indicated as constraints of remedy, drug in-availability and disease alerts , outbreak in the areas respectively, while the rest 60.5%, 52.85%, 45.71%, 33.3% and 18.6 % of participants indicated that, lack of feed and shortage of water, cost of drugs, lack of treatments, un-response to treated animals, and management problems respectively.

Table 3: Animal died in 2024 in the five woreda study conducted

Woreda	Species	Animal died in the 2024						(n=499, %)
		<1year		1-3 year		>3 year		
		N=188	%	N=216	%	N=95	%	
Five (16 pa)	Cattle	25	13.29	26	12.03	40	42.10	91 (18.23%)
	Goat	20	10.63	24	11.11	15	15.78	59(11.82%)
	Sheep	9	4.78	30	13.88	8	8.42	47(9.42%)
	Equine	2	1.06	9	4.16	5	5.26	16(3.20%)
	Poultry	132	70.21	127	58.79	27	28.42	286 (57.31)
Total		188		216		95		N=499

Table.4 The animal died in 2024 in five woreda of the region

Animal population	**No. of livestock in HH**	**Died**	**Death rate**
Cattle	990	91	9.19
Sheep	721	47	6.50
Goat	801	59	7.36
Donkey	188	11	5.85
Poultry	1061	286	26.95
Total	**3761**	**499**	**13.26**

As *Table 4* indicated, 9.2%, 6.50%, 7.36%, 5.85% and 26.95% of relative mortality rate were recorded in Cattle, Sheep, Goat, equine and poultry respectively in six woredas (16 kebeles) of study sites.

Table 5: Young died in 2024 in the five woreda study conducted

woredas	Young species									Crude young mortality
5 (16 pa)	Cattle Calf			Sheep lamb			Goat kid			(N=317, 32) =10.09%
	Born N=137		died N=%	Born N=73		Died	Born N=107		Died	
	M	F		M	F		M	F		
	77	60	16 (11.67)	44	29	11(15.06)	49	58	5(4.67%)	10.09

As *Table 5* indicated, 11.67%, 15.06%, and 4.67% of relative young mortality rate were recorded in Calf, sheep lamb, and goat kid respectively in five woredas (16 kebeles) of study sites.

Table 6: Animal crude mortality rate in 16 villages in (2024) by livestock owners

No	Animal type	No of animal population	No of animal died	Crude mortality rate %
1.	Cattle	990	91	9.19
2.	Sheep	721	47	6.52
3.	Goat	801	59	7.36
4.	Equines	188	11	5.85
5.	Poultry	1061	286	26.95
Total		3,761	494	13.13%

As the *Table 6* above indicated, the crude mortality rate in animal type were, 9.19% of cattle, 6.52 % of sheep, 7.36% of goat, 5.85% of equines and 26.95 % of poultry in 16 villages of the study area. Without poultry, death rate=7.23%.

Table 7: Animal diseased (sick) in the five woreda in 2024 of livestock owners

Woreda	Species	Sick						Total	
		<1year		1-3year		>3 year		(n=1,002, %)	
(Bambasi, Ura,Meng, Dangur, Wombera)	Cattle	88	26.99	151	45.75	181	52.31	420	41.91
	Goat	42	12.88	36	10.90	30	8.67	108	10.77
	Sheep	46	14.11	52	15.75	55	15.89	153	15.26
	Donkey	23	7.05	8	2.42	26	7.51	57	5.68
	Poultry	127	38.95	83	25.15	54	15.60	264	26.34
Total		326		330		346		1,002	

As *Table 7* indicated, 41.91%, 10.77%, 15.26%, 5.68%, and 26.34 % of relative morbidity rate of Cattle, Goat, sheep, Donkey and poultry respectively were recorded in the 16 kebeles of study sites.

Table 8. Specific Diagnosis of diseases and syndromes responsible for animal morbidity in five woredas (2024) respond by livestock owners

Diseases and syndrome	Species	No. of sick	Proportional morbidity rate (n=1,002 diseased)
Trypanosomosis	Cattle	210	20.95
CBPP		110	10.97
Bovine pasteurellosis		100	9.98
Pneumonia	Shoat	108	10.77
Shoat pox	Goat	53	5.28
CCPP		47	4.69
Ovine pasteurellosis	Sheep	53	5.28
Pneumonic case	Equine	57	5.68
NCD	Chicken	162	16.16
Avian salmonella		102	10.17
=1,002			

Table 9: No. of animals born in 2024 of livestock owners

Animals	Animal born by Sex		Total (N=317, %)	No. died, %
	Male no.	Female no.		
Cattle	77	60	137 (43.21%)	16 (11.67%
Sheep	44	29	73(23.02%)	11(15.06%)
Goat	49	58	107(33.75%)	5(4.67%)

43.21%, 23.02% and 33.75% of cattle, sheep, and goat were born in 2024 in the study sites as Table 9 indicated.

Table 10. Frequency of treatment in the selected five woredas in year

Livestock kept	Districts					Mean frequency per year
	Bambasi	meng	Ura	Dangur	Wombera	
Cattle	54	70	62	44	52	53
Shoats	22	60	32	17	34	35.5
Equine/ Donkey/	24	24	12	30	42	26

As *Table 10* indicated; respondents in the five woredas reported domestic animals such as cattle, shoats, and equine (donkey) were taken averagely, 53, 35.5 and 26 defined frequency of treatment in the year.

Table 11. How often each animal treated in year

No.	**Freq. of treatment in a year**	**(Response rate, %)**	**Chi2**	**P- value**
a	Once	7 (6.93%)	9.74	0.04
b.	Twice	8(7.92%)		
C	Three times	9(8.91%)		
d.	Four times	32(31.68%)		
e.	More than Four times	45(44.55%)		

As it was indicated in the Table11, the dominant respondents (44.6%) were often treating their animal more than four times in the year while, 31.68%,8.91%, 7.91% and 6.93% study respondents were treating their animals four times, three times, twice and once in the year respectively.

Table 12. Is the animal drugs used in the area are effective treatment?

Variables	Freq.	Response rate (n=101, %)	Chi2	P –value
a. Yes	82	81.18		
b. No	19	18.81		

As it was described in the *Table* 12, 81.2% % of the respondents indicated that as treatment was effective while the rest 18.2% of study participants noted as there was no effective treatment in the surveyed areas.

Table 13. Is their animal movement in your area ?

Variables	Freq.	Response rate (n=101, %)	Chi2	P –value
a. Yes	85	84.15	2.82	0.09
b. No	16	15.84		

As it was shown in *Table* 13, 84.2% of the respondents indicated that as there was animal movement in the area whereas 15.84% of the respondents were noted as there was no animal movement in the locality.

Table 14. What is the effect / consequence/ of the diseases?

Variables	Fre.	Response rate (n=101, %)	Chi2	P -value
c. Cause death of livestock	47	46.53	8.80	0.72
d. Causes production loss (milk, meat, hides and/skin	39	38.61		
c. Causes loss of work efficiency (draught power), of oxen and other	10	9.90		
d. Others	5	4.95		

As it was described in the Table 14. 46.53% of the respondents noted that, the effect of diseases in the area were causes death of livestock, while 38.61, 9,90, and 4.95% of the respondents noted as diseases causes production loss, draught power loss (loss of work efficiently) and others only respectively.

Table 15. How is the disease transmitted?

Variables	frequency	Response rate (n=101, %)	Chi2	P value
a. By flies	28	27.72	11.36	0.01
b. By ticks	12	11.88		
c. By treatment materials	4	3.96		
d. Both fly and tick	57	56.43		

Majority (56.43%) of the study participants indicated, as the disease transmitted by both flies and ticks, while 27.72%, 11.88%, and 3.96% of respondents stated as the disease transmitted by flies, ticks and treatment materials, respectively, as Table 15 showed.

Table 16: Is there any operation for animal disease prevention in your area?

Variables	Freq.	Response rate (n=101, %)	Chi2	P value
a. Yes	95	94.95	9.74	0.04
If yes, what kind of control methods employed in your area?				
1. Fly control using insecticides	27	26.73		
2. Treatment of affected animals	38	37.62		
3. Vaccination	33	32.67		
4. Animal movement control	3	2.97		
b. No	6	5.94		

94.95 % of the respondents noted that, as there was animal diseases control methods in the areas. Consistently, 26.73%, 37.62%, 32.67%, and 2.97% of participants said that as there was fly control using insecticides, treatment of affected animals, vaccination and animal movement controls respectively which were set as operation for animal diseases in your areas as the Table 16 showed. Whereas, 5.94% of the respondents stated as the there was no any operation for animal disease prevention in the areas.

Table 17. Where do you get drugs for the treatment of patient animals?

Variables	Fre.	(Response rate n=101, %)	Chi2	P- value
a. Vet. Pharmacy	14	13.86	0.48	0.92
b. Shops	1	0.99		
c. Vet clinic	33	32.67		
d. Both pharmacy, vet. clinic	53	52.47		

As it was described in Table 17, majority (52.47%) of study respondents noted that the treatment drugs for patient animals was brought from both veterinary Pharmacy and veterinary clinics while 32.67%, 0.99%, and 13.86% of treatment drugs were brought from vet. Clinics shop and vet. Pharmacy respectively. The drugs for treatments of patient animals get from veterinary pharmacy while 0.95% of the respondents stated as they get from shops.

Table 18. Do you think the treatment is effective?

Variables	Freq.	(Response rate n=101, %)	Chi2	P- value
Very much ineffective	8	7.92	1.38	0.71
ineffective	5	4.95		
Slightly effective	20	19.80		
Very much effective	68	67.32		

As it has been seen in table 18 , 67.32% of study respondents indicated as the drugs for treatments of patient very much effective while 19.80%, 4.95%, and 7.92% was categorized as Slightly effective, ineffective and Very much ineffective respectively.

Table 19. What are the risk factors for livestock morbidity and mortality in the area ?

Variables	Freq.	(Response rate n=101, %)	Chi2	P- value
Lack of treatment	6	5.94	2.83	0.58
Failure of treatment response	13	12.87		
Vectors (flies, tick..)	29	28.71		
Disease out break	39	38.61		
Environment factors	14	13.86		

As it has been seen in table 18, 38.61 % of study respondents indicated as the risk factors for livestock morbidity and mortality as disease outbreak whereas the rest 13.86%,28.71%,12.87%, and 5.94% were environmental factors, vectors, failure of treatment and lack of treatment respectively in the study areas.

7. DISCUSSION

The present survey was conducted in Bambasi (4 kebeles), Ura (4 kebeles) and Meng (2kebeles), Dangur (3 kebeles), and Wombera (3 kebeles) of five districts for retrospective animal mortality and morbidity rate and problems identification in the areas. Overall 101 respondents of livestock owners and 16 kebeles animal health workers were interviewed. Animal crude mortality and proportional morbidity rate, treatment cost per animal in a year, domestic animal level of importance, disease and syndrome prioritization, and animal population in 2024 were assessed during the survey.

Of 101 respondents of kebeles residents, 83.2% were male, while 16.83% were females. Regarding the educations categories, (32.67%), (30.69%), (17.82%) and (12.87%), 5.94% of respondents were illiterate, 1-4, 5-8, and 8-12 grades and Diploma and above respectively in the 16 sites respectively. And 15-29 years, 30-64 years and >64 years of age categories were 17.83%, 64.35%, and 17.82% of respondents respectively in the 16 villages of study sites.

The present findings were consistent with Asmamaw A *et al*., (2022) in Bambasi district, who reported, (91.04%) male, and (8.95% female. And 26.86% of illiterate, 65.67% of 1-8 grade, and 7.46% of 8-10 grade of education level in the district, and < 30 years, 30-50 years and >50 years (5.97%, 40.29%, and 53.73%) of respondents of age categories respectively, were reported during the study. Comparably, the present result was concord with the previous findings of Umer seidG. *et al*. (2021) in Doba District of WestHarerghe Zone, Ethiopia; who indicated demographic features the respondents. That is 86.7% of males and 13.3% of females of sex groups. 66.7% of illiterate, 24.4% of literate, 8.9% of primary school of education status. And 37.8% of respondents were less than 15 years, 62.2% of respondents of family size were age ranging greater than 15 years.

Similarly, Abdihakim M, *et al*.(2022) in SomaliShabelle Zone, Somali Regional State, Ethiopia, showed that, Gender, age, educational level and family size were assessed, that was, 75% of respondent males and 24.5% females of sex groups. 63.5% of respondents illiterate, 26% of primary grade, and 10.5% religious school of educational levels. Furthermore, Gebremedhin A.(2007) who studied that, major animal health problems of market oriented livestock development in Atsbi Womberta woreda, Tigray regional state, that is 82% respondents of males, and 18% of females. Respondents of 82 % of illiterate, 10%of Religious, and 6% of elementary school and 2% of junior and above. 39.8% of respondents were less than 15 years

old, and 61.2% of respondents of greater than 15 years of demographic features in the areas.

Up on investigation of animal health problems, majority of respondents said that disease occurrence, and outbreak (66.2%), lack of grazing feed and water (60.47%), cost of drug (52.85%), lack of remedy, drug in- availability (69.52%), management problems(18.6%), un-response to treatment (33.3%) and lack of treatment materials (45.71%) are the most constraint , livestock production limiting factors in the areas. Comparably, Umer seid Geletu *et al*. (2021) in Doba District of West Harerghe Zone, Ethiopia; indicated that, 100% of occurrence of health problems, and 37.8% of animal loss due to diseases were animal health constraints that limit the productivity in the area. Besides this, Birhanu A *et al.(*2015) who studied on Investigation of major cattle production constraints in KembataTambaro zone of Southern Ethiopia, showed shortages of feed and free grazing land and diseases as the major constraints affecting production and productivity of cattle and small holders' livelihood. In addition, Markos T, (1999) in a M2-2 sub-agroecologicalzone with special reference to goat production, who investigated, livestock production constraints as feed shortages, livestock diseases, low genetic potential of indigenous livestock, lack of marketing infrastructure and water shortages.

Comparably, this findings were in-consistent with the earlier findings of Asmamaw A *et al*.,(2022) who indicated, (98.50%) of disease occurrence, (95.52%) of shortage of water, (88.06%) of feed and grazing land,(55.22%) of insufficient drug, (59.70%) of increased cost of drug, (8.95%) of un response to treated animals, (7.46%) of poor management of animals, 4.48% of unwillingness to vaccinate their animals, and (5.97%) of uncontrolled animal movement were livestock health constraints respond by community livestock owners.

As community livestock owners respond, animal crude mortality rate with animal type were 9.2% of cattle, 6.50% of sheep, 7.36% of goat, 5.85% of equine, and 26.954 % of poultry and without poultry the overall mortality rate was 7.23%.

Similarly, 18.23%, 11.82%, 9.42%, 3.20% and 57.31% of relative mortality rate were recorded in Cattle, Goat, Sheep, donkey and poultry respectively in five woredas (16 kebeles) of study sites. Besides, 11.67%, 15.06%, and 4.67% of calf, lamb, kid of young mortality rate were encountered/ investigated in the present study of six woredas. Comparably, the present crude mortality was in line with the previous findings of Asmamaw A *et al.*(2017) which was reported as crude animal mortality rate were, 21.46 % cattle, 22.1% sheep, 22.52 % goat, 6.75 % equines and 75.1 % poultry. Besides this, 2.32% LSD, 2.91% CBPP, 0.87% anthrax, 21.97% PPR, 7.2% Shoat pox, 10.92 % CCPP, 52.32 NCD% and 1.46% Rabies, were reported as proportional mortality rate. These varieties might be due to, the major causes of mortality were poor management problems followed by viral and bacterial diseases. Similarly, it was also slightly inconsistent with mortality rate of 12.17% cattle, sheep 38.06%, goat 68.58% and equines 30.28% and crude mortality rate excluding poultry were 48.63% in Assosa zone woredas' (CSA, 2013). The current study was concord with the previous findings of Gebremedhin A. (2007) who indicated in AtsbiWombertaworeda, Tigray regional state, as 16.98%, 6.6% of anthrax in cattle, sheep, 15.7%, 14.7% of black leg in cattle, sheep, 10.6% of mastitis of cattle, 8.9% ,17.0% of Pasteurellosis in cattle, sheep, 5.3% of LSD in cattle, 7.9% ,53.7% of shoat pox of sheep , goat and 53.7% of NCD of livestock mortality rate respectively, and also, Gebremedhin A. (2007) reported that, during 2005/2006 years, a total of 223 animals died from different causes, but according to farmers, most of sheep died of diseases that is categorized as unknown disease. From the total number of animals died, 12.3% were cattle, 40.8 % were sheep, 20.1% Goat, 18.7% were poultry and 4.1% were equine.

However, the present finding is higher when compared with the previous findings of, Tesfaye D *et al*. (2011) who indicated, 4.4 % overall mortality rate of cattle due to trypanosomosis and 12.1% of overall prevalence of the disease, during his research activity on economic burden of bovine trypanosomosis in three villages of Metekel zone, Northwest Ethiopia. In addition, it disagrees with the previous findings of Hossain MM *et al*. (2014) who reported, 5.6% average overall mortality rate, and higher mortality of cattle in rainy season (37.98%) followed by winter (33.03%) and summer (28.99%) and also pneumonia (39.91%), Tuberculosis (20.58%) and enteritis (15.58%) cause of deaths. In addition, this result was in line with the earlier reports by Solomon w. *et al*. (2014) during their studies on major causes of lamb mortality at Ebinatworeda, Amhara National state, north western, Ethiopia, that, 40% of overall lamb mortality, most of mortalities were due to diarrhea (51.0%), pneumonia (38%)and others 10.0%. The present, report were higher, as compared to the previous report of Asmamaw A *et al*.,(2022) in Bambasi district , who reported, animal crude mortality rate of 1.01% of cattle, 0.98% of sheep, 6.20% of goat, 0.87% of equine, and 9.47% of poultry from livestock owners. Similarly, 1.02% of cattle, 7.17% of sheep, 4.51% of goat, 4.52% of equine, and 4.85% of poultry in the five villages of

Bambasi district, from the veterinary health posts of cases book documents.

Livestock owners respondents said that, morbidity rate in animal type were. 41.91%, 10.77%, 15.26%, 5.68%, and 26.34 % of relative morbidity rate of Cattle, Goat, sheep, equine and poultry respectively in the 23 kebeles of study sites. Respondents of livestock owners indicated that , the highest morbidity rates were Trypanosomosis (20.95%), CBPP(10.97%), Shoat pneumonia (10.77%), NCD(16.16%), avian salmonella(10.17%), Bovine pastuerellosis (9.98%), while the lowest morbidity rates were CCPP(4.69%), Shoat pox (5.28%), equine pneumonia(5.68%), ovine pasteurellosis (5.28%). In addition, in the present study, 20.95%, 10.97%, 10.77%, 16.16%, 10.17%, 9.98%, 4.69%, 5.28%, 5.68%, and 5.28% of bovine trypanosomosis, CBPP, Shoat pneumonia, NCD, avian salmonella , Bovine pasteurellosis, CCPP, shoat pox, equine pneumonia, Ovine pastuerellosis, and respectively of livestock morbidity rate were recorded in 16 kebelles. Comparably, Asmamaw A *et al.*(2017) reported that, 28.72% Trypanosomosis (cattle, shoats), 26.39% internal parasites (cattle, shoat, equines), 13.46% ectoparasites (cattle, shoat, equines) and 31.43% other disease complications were studied as proportional morbidity rate during the study period. However, the present findings were inconsistent with the findings of Chaudhary JK, *et al*. (2013) who reported an overall bovine morbidity of 31.22%. Besides this, it was in accordance with the study conducted by Kelay B *et al*. (2008) who reported incidence of crude morbidity 61.5%, due to (diarrhea, pneumonia, navel ill, septicemia and congenital disease), during the study of calf morbidity in dairy farms in Debre zeit, its environs, Ethiopia and also the most frequent disease of calf diarrhea with incidence of 42.9%. This variation were due to substantial economic losses and/ or animal death, due to disease occurrence, shortage of variety drugs, in appropriate vaccination program, and different health constraints in the areas.

Comparably, the present findings were in line with the earlier report of Asmamaw A *et al.*(2022) in Bambasi who reported that, relative morbidity rate of 12.34% trypanosomosis, 10.85% CBPP, 12.27% pastuerellosis, 1.04% of PPR, 1.11% of shoat pox, 4.46% of CCPP, 1.12% of equine pneumonia, 32.24% NCD, and 24.54 % of avian salmonella in five villages. Similarly, kebeles animal health workers reported that, 25.37% of trypanosomosis, 31.23% of CBPP, 28.30% of pastuerellosis, 1.79% of PPR, 1.02% of shoat pox, 4.99% of CCPP, 2.53% of equine pneumonia, 1.70% of NCD, and 1.12% of avian salmonella of proportional morbidity rate.

The present study indicated that, frequency of treatment per animals per year were averagely, 53, 35.5, 26 of cattle, shoat and equines respectively, were brought to nearby veterinary health posts in a year as community livestock owners reported. Besides this, 59.83 for cattle, 29.33 for shoat, 51.66 for equine and 8.6 for poultry, of average treatment cost was reported by livestock owners during the survey period in selected six woredas.

Comparably, lower results were reported by Asmamaw A *et al* .(2022), in Bambasi district, that was, 17, 3, 2 of cattle, shoat and equines of frequency of treatment per animals per year respectively, and averagely, 18, 11.66, 7.33 frequency of treatment per animals per year, of cattle, shoat and equines respectively. Besides this, 48.4 for cattle, 17.2 for shoat, 30.2 for equine of treatment cost was reported by Asmamaw A *et al* .(2022) in Bambasi district. In addition, it was comparable with the findings of Gebremedhin A. (2007), in AtsbiWombertaworeda, Tigray regional state, who indicated that 42.5% of modern treatment cost, and 35.2% of traditional treatment cost as frequency of treatment. Similarly, 44.0% expensive, 44.0% moderate and 12.0% cheap of degree of treatment cost as respondents in the study areas. This finding was relatively comparable with that of Asmamaw A *et a*l. (2017) who showed, the farmers in the area were spending a significantly higher amount of money for the treatment of priority common animal diseases. Many of the farmers prioritized losses of draft power as the most important impact of the disease. The disease burden was significantly higher in the rainy season than at other times of the year.

8. Conclusion And Recommendations

The retrospective study on animal health problems investigation in Bambasi,Ura, Meng, Dangur and wombera (16 kebeles) were assessed. The highest and lowest (26.95%) and (5.85%) crude mortality rates were recorded in poultry and equine respectively. The overall animal crude mortality rate was 7.23. Similarly, 11.67% of calves, 15.06% of lambs and 4.67% of kid goat of young mortality rates were recorded and overall all crude young mortality was 10.09%. The highest and lowest (poultry (26.34%), cattle (41.91%)), and goat (10.77%) and (sheep (15.26%), and equine (5.68%) of morbidity rates were investigated respectively. The highest and the lowest morbidity rate were Trypanosomosis (20.95%), NCD (16.16%), avian salmonella (10.17%), and Shoat pneumonia (10.77%), Bovine pasteurellosis (9.98%) while the lowest were ovine pasteurellosis(5.28%), equine pneumonia(5.68%), Shoat pox (5.28%) respectively. In studied area, un

strategic treatment and vaccination service, misdiagnosis, lack of veterinary diagnostic equipment's, less monitoring, and weak surveillance were main gaps identified. Therefore, strategic control measures should be implemented properly in study areas so as to mitigate the problems encountered.

9. **Based on the above findings, the following recommendations were forwarded**:

- Illegal drug seller /shoppers, venders and injectors in the specific areas should be managed and owner ship would be created,
- Identification and isolation of major animal disease, and regular seasonal surveillance could be implemented,
- Community sensitization and social mobilization should be done in order to increase their perspectives up on animal husbandry, animal production , handling, sanitary measures, disease reporting, management options of rotational , continuous, communal grazing and watering strategy,
- Cyclical vector (tsetse fly- transmitted trypanosomosis), ticks and mechanical vectors control measures should be conducted in the areas.
- Regular animal disease monitoring, and vaccination program should be implemented.

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