A 5 Year (2010 – 2014) Retrospective Study on Dystocia Cases Managed in Veterinary Clinics in North Western Nigeria

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***Abstract*: A 5 – year (2010 – 2014) retrospective study of dystocia cases presented and managed in veterinary clinics located in north western Nigeria, was carried out using clinical case records. All records containing cases of dystocia were carefully studied and recorded. Dystocia accounted for 0.9% of 31106 cases presented and managed within the study period. A total of 10,351, 14,185 and 6570 cases where reported in Kebbi, Sokoto and Zamfara respectively. Ovine is the most affected species (74.4%) followed by caprine (20.3%) and lastly bovine (5.3%). The breed of bovine affected with dystocia are sokoto gudali (78.6%) and white fulani (21.4%) while for ovine are yankasa (40%), balami (25.3%), ouda (24.7%) and cross breed (10%). While for caprine are red Sokoto goats (85%) and West African dwarf (15%). Oversized fetus is the common cause in ovine and bovine while for caprine is twinning. Manual traction is the most common management used followed by caesarean section in both ovine and caprine while for bovine is caesarean section. It is recommended that, more work should be done to reduce dystocia occurrence, enlighten people about cross breeding and proper record keeping so as to know the total number of cases recorded.**

***Key words*: Retrospective, Dystocia, Veterinary Clinics, North Western, Nigeria.**

I. INTRODUCTION

Livestock account for one third of Nigerians agricultural produce providing income, employment, food, farm energy, manure, fuel and transport [1]. They are also major source of government revenue. Traditional livestock production in Nigeria is varied and complex. Livestock especially ruminants are the most efficient users of uncultivated land and can contribute substantially to crop production [1]. Among all the livestock that makes up the farm animals in Nigeria, ruminants, comprising sheep, goats and cattle, constitute the farm animals largely reared by farm families in the country's agricultural system [1]. Dystocia means difficult birth and is the opposite eutocia or normal birth [2]. Dystocia may be referring to abnormal or difficult birth, it is expected to occur in about 10 – 15 % of first calf heifers and in 3 – 5 % of matured cattle [3]. The dividing point between dystocia and eutocia is not a clear cut [3]. Dystocia occur in all domestic animal species but the highest incidence is probably in ruminants (cattle). The causes of dystocia are classified in to maternal and fetal categories where the responsibility for dystocia is attributed to the mother and fetus respectively [4]. In many cases both mother and fetus share responsibility for a problem and in some cases it may be difficult to pin – point the exact cause of dystocia. Common cause is feoto – maternal disproportion, but faulty disposition is also often to blame [5]. The incidence of dystocia is generally low, 3% in the cow, 4% in the mare and 3% in the ewe [6]. Fetal maldisposition has the cause of dystocia in sheep (50%), obstruction of the birth canal (ring womb) is next with 35% and the least is fatal moinster/abnormalities, 3%. [6]. In Nigeria, cases of dystocia have been reported to be due to fetal oversize, faulty disposition, partial dilation of the cervix, fetal moinster/abnormalities and toxaemia. [7,8,9]. Other factors that can influence the occurrence of dystocia are breed (sire and dam), number of fetuses and weight of dam [10]. Dystocia as a result of abnormal position, posture and presentation can present in any of the following forms; Dorso-illiac or dorsopubic position, in anterior presentation with deviation of head and neck, deviation of fore limbs, interlocking of the maternal birth canal and fetal pelvic or hip lock which is common in heifers (primipara) and forward extension of the hind limb beneath the fetal body or dog sitting position [12].

Dystocia is one of the most important traits in sheep production industries [13]. This natural tendency is often time distorted as a result of dystocia which result to the loss of either the dam, the fetus (es) or both. The incidence of dystocia is generally low, 3% in the cow, 4% in the mare and 3% in the ewe [14]. According to the National Animal Health Monitoring System's (NAHMS) Dairy 2002 report, producers reported that only 3.7% of cows experienced "other reproductive problems" which included dystocia, more controlled studies have shown that the incidence of dystocia is closer to 30%. Cows were also affected by dystocia. They were more likely to experience uterine compromise (including retained fetal membranes, metritis and pyometra) and a respiratory ailment if they required assistance at calving. Cows with dystocia were more likely to be culled and were at

significantly increased odds of dying within 14 days of calving [15]. According to [2] the effect of dystocia on production include Increase stillbirth rate, Increased mortality rate of the dam, Reduced productivity of the dam, reduced subsequent fertility, increase chances of sterility and Increase likelihood of culling.

The study is set to highlight the different causes, incidence and prevalence of dystocia in relation to species affected and associated factors with a view to referring possible solutions to the problem. The dearth of information on cases of dystocia frequently encountered and it possibility of having great consequences on the production of animal further necessitates this investigation.

*Aim of the study***.** The aim of this study is to carry out a 5 – year (2010 – 2014) retrospective study of dystocia cases presented and managed in veterinary clinics located in Sokoto, Kebbi and Zamfara northern western Nigeria.

II. MATERIALS AND METHODS

Study Location

The study was conducted in Veterinary Teaching hospital of Usmanu Danfodiyo university Sokoto, Veterinary Clinic Sokoto, Zonal Veterinary Clinic Gusau in Zamfara state and Zonal Veterinary Clinic Birnin kebbi in Kebbi state. All states were located in north western Nigeria.

Sokoto state is located between longitudes 4°05´E and 6°40´E and latitudes 11°30´N and 14°00´N and shares common borders with Niger to the north, Kebbi State to the south-west and Zamfara State to the east. The state ranks second in the nation livestock population with an estimated number of 0.8 million cattle, 3.85 million sheep, 4 million goats, 2 million chickens [16].

Zamfara State is located in north – western Nigeria. Zamfara State has an area of 39,762 square kilometers. It has a population of 3,602,356. The state is bordered in the North by Niger republic, to the South by Kaduna State, to the east by Katsina State and to the West by Sokoto and Niger States. Zamfara state has a livestock population of nearly six (6) millions comprising over one million cattle, 857,000 sheep, over two million goats, 1.7 million poultry, 18,000 horses, 21,000 camels and 46,000 donkeys.

Kebbi state is Located in the extreme Northwest part of Nigeria between latitude 10Â°8'N and 13Â°15'N and longitude 3Â°30'E and 6Â°02'E, and of size 36,229 square kilometers representing 3.92% of Nigeria total land mass, the state is shares a borders with Niger Republic in the west and with states of Sokoto, Zamfara, and Niger in the North, East and South Respectively. It has a livestock population of over 1 million cattle, 900,000 sheep, 876,000 goats among others.

Study Design

Clinical case records in the study locations from 2010 – 2014 were examined and sorted out. All records containing cases of dystocia were carefully studied and the following variables were noted;Species of the dam, breed of the dam, Age of the dam, breed of the offspring, Sex of the offspring, Causes of dystocia, Management of dystocia, Outcome of the management

All data were imputed in to Microsoft office excel 2007 for further analysis using column chart and tables. and the followings were calculated.

Prevalence of dystocia within the study period, State specific prevalence of dystocia, overall annual prevalence of dystocia, Species specific prevalence, Breed specific prevalence

III. RESULTS

Dystocia cases account for 266 (0.9%) of the total number of cases (31106) presented for management of different ailments within the study period (2010 – 2014) in which total number of cases managed each year are 4110, 4893, 7561, 7375 and 7167 for 2010, 2011, 2012, 2013 and 2014 respectively. A total of 10,351, 14,185 and 6570 cases were reported in Kebbi, Sokoto and Zamfara states respectively. (Table 4.1)

Dystocia Encountered in Kebbi State

The dystocia cases recorded from 2010 – 2014 in Kebbi veterinary clinics is 45%, 29%, 16%, and 10% for 2011, 2012, 2013 and 2010 (10%) respectively (Table 4.2). The prevalence of dystocia in relation to species affected in kebbi veterinary clinics from 2010 – 2014 shows ovine species had the highest prevalence (73%) followed by caprine species with prevalence (27%) while bovine species is not recorded. (Figure1). The prevalence of dystocia in relation to the breed of the dam that is mostly affected from 2010 – 2014 in Birnin Kebbi Veterinary clinics, Kebbi state; shows, for bovine species, it is not recorded. Ovine species, Yankasa breed is mostly affected (50%) followed by Balami (36%) and lastly Cross breed (14%). For caprine species, Red Sokoto Goats is mostly affected (100%) while West African Dwarf and Sahel breed are not recorded (Table 4.3). The prevalence of dystocia in relation to the breed of the offspring that is mostly affected from 2010 – 2014 in Birnin Kebbi Veterinary clinics, Kebbi state; for bovine species, it is not recorded. Ovine species, Yankasa breed is mostly affected (50%) followed by Balami (39&) and lastly Cross breed (11%). For caprine species, Red Sokoto Goats is mostly affected (100%) while West African Dwarf and Sahel breed are not recorded (Table 4.4). The prevalence of dystocia affecting the sex of the offspring from 2010 – 2014 in Kebbi Veterinary clinics shows; Ovine species male are mostly affected (57%) followed by female (39%) and lastly male/female (4%). Caprine species male/female are mostly affected (80%) followed by male (10%) and female (10%). While bovine species is not recorded (Table 4.5). The prevalence of dystocia in relation to the causes and species affected from 2010 – 2014 in Kebbi state veterinary clinics shows; Ovine species, oversized fetus (21%), abnormal position (18%) and malnutrition (18%) are high while close cervix (18%), prolong straining (11%) and uterine inertia (11%) are moderate and lastly fetal death (2%) and twinning

(2%) are least causes. Caprine species, twinning is high while fatal oversized and retained fetus are moderate. Bovine species is not recorded (Figure 2). The management of dystocia in kebbi veterinary clinics from 2010 – 2014 shows; Bovine species is not recorded. Ovine species, manual traction management is the most common (44%) followed by caesarean section (38%) while fetotomy (5%) and therapeutic management (5%) are least common. Caprine species, manual traction is the most common used (100%) while caesarean section, fetotomy and therapeutic management are not recorded (Figure 3). The outcome of the management of dystocia in relation to cause and species affected in Birnin kebbi Veterinary clinics, Kebbi state from 2010 – 2014. For Bovine species is not recorded, for Ovine species the dam and fetus that survive the management are high (61%) than those that did not (39%) likewise in caprine species those that survived (70%) and those that did not (30%) (Table 4.6).

Dystocia Encountered in Sokoto

The dystocia cases recorded from 2010 – 2014 in Sokoto State is 29.5%, 29%, 19.3%, 17.2% and 15% for 2014, 2013, 2010, 2012 and 2011 respectively (Table 4.2). The prevalence of dystocia in relation to species affected from 2010 – 2014 in Sokoto State; shows ovine specie is mostly affected (66%) followed by caprine species (26%) and lastly bovine species (8%) (Figure4). The prevalence of dystocia in relation to the breed of the dam that is mostly affected from 2010 – 2014 in Sokoto State; for bovine species, Sokoto Gudali is the most affected breed (78.8%) while White Fulani is the least affected (22.2%). Ovine species, Ouda breed is mostly affected (38.2%) followed by Yankasa (28.4%) and Balami (23.6%) while Cross breed is the least affected (9.8%). For caprine species, Red Sokoto Goats is mostly affected (78%) while West African Dwarf is the least affected (22%) and Sahel breed is not recorded (Table 4.7). The prevalence of dystocia in relation to the breed of offspring that is mostly affected from 2010 – 2014 in Sokoto State; for bovine species, Sokoto Gudali is the most affected breed (77.8%) while White Fulani is the least affected (22.2%). Ovine species, Ouda breed is mostly affected (40.2%) followed by Yankasa (33.3%) and lastly Balami (26.5%) while Cross breed is not recorded. For caprine species, Red Sokoto Goats is mostly affected (78%) while West African Dwarf is the least affected (22%) and Sahel breed is not recorded (Table 4.8).

Dystocia Encountered in Zamfara State

The dystocia cases recorded from 2010 – 2014 in Gusau veterinary clinics is 39.5%, 35.5% and 25%, for 2014, 2012 and 2013 respectively while for 2010 and 2011 are not recorded (Table 4.2). The prevalence of dystcia in relation to species affected from 2010 – 2014 in Gusau Veterinary clinics, Zamfara state of the northern western Nigeria shows ovine species are the most affected (80%) followed by caprine species (13%) and lastly bovine species (7%) (Figure7). The prevalence of dysocia in relation to the breed of the dam that is mostly affected from 2010 – 2014 in Gusau Veterinary clinics, shows; for bovine species, Sokoto Gudali is the most affected breed (80%) followed by White Fulani (20%). For Ovine species, Yankasa breed is mostly affected (53%) followed by Balami (23%) then Ouda (15%) and lastly Cross breed with (9%). For caprine species, Red Sokoto Goats is mostly affected (92%) followed by West African Dwarf breed (8%) and lastly Sahel breed which is not recorded (Table 4.10). The prevalence of dysocia in relation to the breed of the offspring that is mostly affected from 2010 – 2014 in Gusau Veterinary clinics, shows; for bovine species, Sokoto Gudali is the most affected breed (80%) followed by White Fulani (20%). For Ovine species, Yankasa breed is mostly affected (43%) followed by Cross breed with (26%), then Balami (16%) and lastly Ouda (15%). For caprine species, Red Sokoto Goats is mostly affected (92%) followed by West African Dwarf breed (8%) and lastly Sahel breed which is not recorded (Table 4.11). The prevalence of dystocia in relation to the causes and species affected from 2010 – 2014 in Gusau Veterinary clinics, Zamfara state northern western Nigeria shows; Bovine species oversized fetus is the major cause (40%) followed by fetal death (20%) and uterine inertia (20%). Ovine species oversized fetus is the highest cause (46%) followed by abnormal position (28%), uterine inertia (12%) and fetal death (9%) while narrow birth canal (3.5%) and malnutrition (1.5%) are the least cause. For caprine species, twinning is the highest cause (66%) followed by abnormal position (9%), fetal death (8.5), malnutrition (8.5) and oversized fetus (7%) (Figure8). The management of dystocia in relation to cause and species affected from 2010 – 2014 in Gusau Veterinary clinics, Zamfara state shows; Bovine species, caesarean section is the most common management (80%) followed by manual traction (20%) while therapeutic and fetotomy is not recorded. Caprine species, manual traction is the most common used (82%) followed by caesarean section (18%) while therapeutic and fetotomy management is not recorded. Ovine species caesarean section is the most common used (52%) followed by manual traction (35%) while therapeutic (9%) and fetotomy management (4%) are the least common (Figure9). The outcome of management of the dystocia in relation to species from 2010 – 2014 in Gusau Veterinary clinics, Zamfara state. For the bovine species the dam and offspring that survive after the management are high (60%) than those that did not (40%). Ovine species, survived (65%) and those did not survive (35%). Caprine species, those that survived (75%) and those that did not survived (25%) (Table 4.12).

Table 4.1: Case load in Veterinary Clinics in North Western Nigeria.

State		Years				Total
	2010	2011	2012	2013	2014	
Kebbi	1890	2023	2336	2452	1650	10351
Sokoto	21120	2870	3100	2687	3308	14185
Zamfara	-	-	2125	2236	2209	6570
Total	4110	4893	7561	7375	7167	31106

Table 4.2: Dystocia case load in Veterinary Clinics in North Western Nigeria.

State			Years			Total
	2010	2011	2012	2013	2014	
Kebbi	10%	45%	29%	16%	0%	100%
Sokoto	19.3%	15%	17.2%	29%	29.5%	100%
Zamfara	0%	0%	36%	25%	39%	100%

Table 4.3: Prevalence of dystocia in relation to breed of the dam affected in Kebbi Veterinary Clinic.

BOVINE	FREQUENCY	OVINE	FREQUENCY	CAPRINE	FREQUENCY
Sokoto Gudali	**0%**	Yankasa	**50%**	Red Sokoto Goat	**100%**
White Fulani	**0%**	Balami	**36%**	West African Dwarf	**0%**
		Ouda	**0%**		
		Cross	**14%**		

Table 4.4: Prevalence of dystocia in relation to breed of the offspring affected in Kebbi state Veterinary Clinic.

BOVINE	FREQUENCY	OVINE	FREQUENCY	CAPRINE	FREQUENCY
Sokoto Gudali	0%	Yankasa	50%	Red Sokoto Goat	100%
White Fulani	0%	Balami	39%	West African Dwarf	0%
		Ouda	0%	Sahel	0%
		Cross	11%		

Table 4.5: Sex of offspring affected with dystocia in Kebbi Veterinary Clinic.

	BOVINE	OVINE	CAPRINE
MALE	0%	57%	10%
FEMALE	0%	39%	10%
MALE&FEMALE	0%	4%	80%

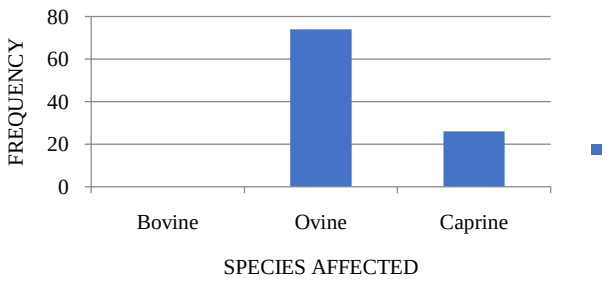


Figure 1. Species affected with dystocia in Kebbi Veterinary Clinic.

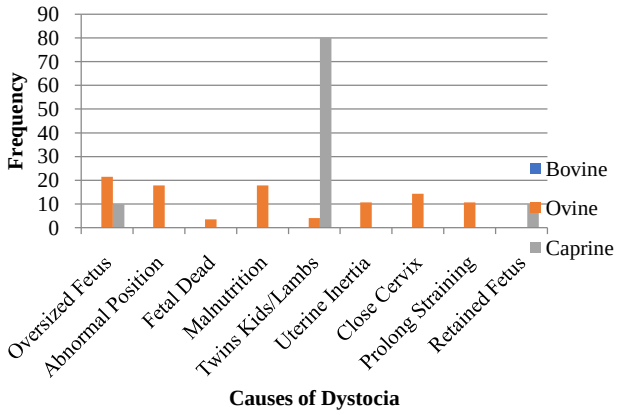


Figure 2: Prevalence of dystocia in relation to cause and species affected in Kebbi Veterinary Clinic.

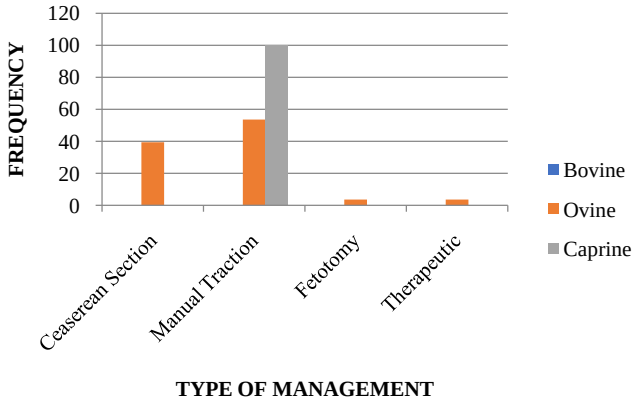


Figure 3: Management of Dystocia in relation to cause and species affected in Kebbi Veterinary Clinic.

Table 4.6: outcome of management of dystocia in relation to cause and species affected in Kebbi Veterinary Clinic.

	BOVINE	OVINE	CAPRINE
SURVIVE	0%	61%	70%
DEAD	0%	39%	30%

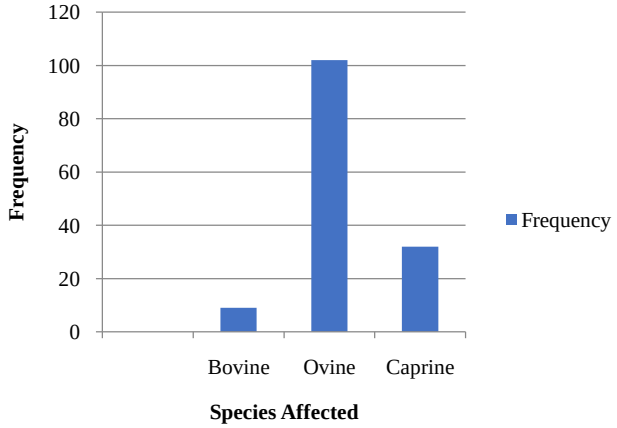


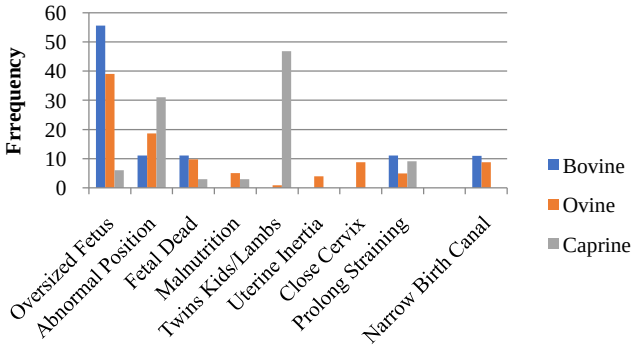
Figure 4: Prevalence of dystocia in relation to species affected in sokoto State.

Table 4.7: Prevalence of dystocia in relation to breed of dam affected in Sokoto State.

BOVINE	FREQUENCY	OVINE	FREQUENCY	CAPRINE	FREQUENCY
Sokoto Gudali	77.8%	Yankasa	28.4%	Red Sokoto Goat	78%
White Fulani	22.2%	Balami	23.6%	West African Dwarf	22%
		Ouda	38.2%	Sahel	0%
		Cross	9.8%		

Table 4.8: Prevalence of dystocia in relation to breed of offspring affected in Sokoto State.

BOVINE	FREQUENCY	OVINE	FREQUENCY	CAPRINE	FREQUENCY
Sokoto Gudali	77.8%	Yankasa	33.3%	Red Sokoto Goat	78%
White Fulani	22.2%	Balami	26.5%	West African Dwarf	22%
		Ouda	40.2%	Sahel	0%
		Cross	0%		



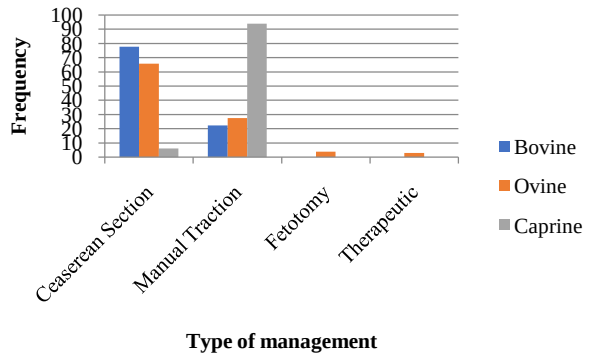


Figure 6: Management of dystocia in relation to cause and species affected in Sokoto State.

Table 4.9: Outcome of dystocia in relation to species and management from in Sokoto State.

	BOVINE	OVINE	CAPRINE
SURVIVE	77.8%	61.8%	78%
DEAD	22.2%	38.2%	22%

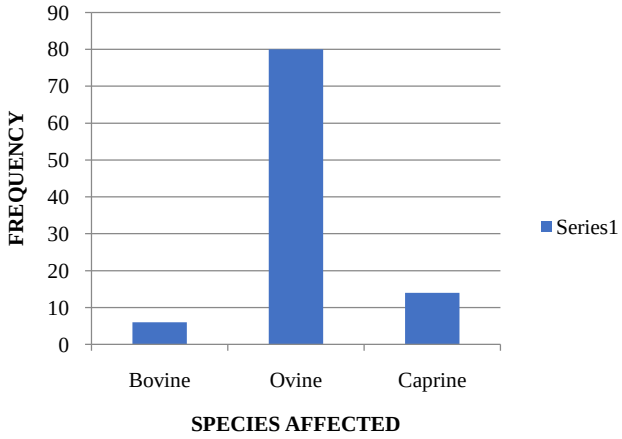


Figure 7: Species affected with dystocia in Gusau Veterinary Clinic, Zamfara State.

Table 4.10: Prevalence of dystocia in relation to breed of the dam affected in Gusau Veterinary Clinic, Zamfara state.

BOVINE	FREQUENCY	OVINE	FREQUENCY	CAPRINE	FREQUENCY
Sokoto Gudali	**80%**	Yankasa	**53%**	Red Sokoto Goat	**92%**
White Fulani	**20%**	Balami	**23%**	West African Dwarf	**8%**
		Ouda	**15%**		
		Cross	**9%**		

Table 4.11: Prevalence of dystocia in relation to breed of offspring affected in Gusau Veterinary Clinic, Zamfara State.

BOVINE	FREQUENCY	OVINE	FREQUENCY	CAPRINE	FREQUENCY
Sokoto Gudali	80%	Yankasa	43%	Red Sokoto Goat	92%
White Fulani	20%	Balami	16%	West African Dwarf	8%
		Ouda	15%		
		Cross	26%		

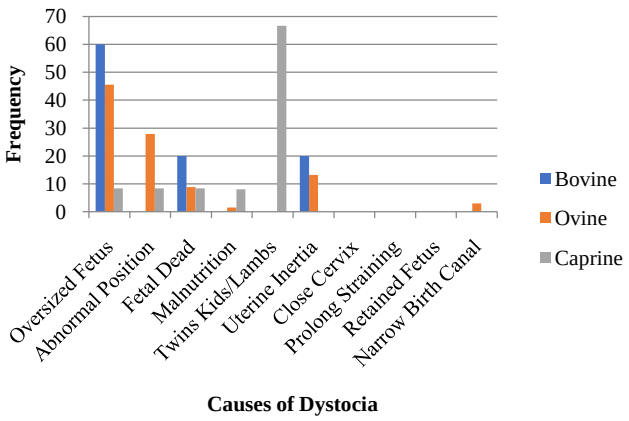


Figure 8: Prevalence of dystocia in relation to causes and species affected in Gusau Veterinary Clinic, Zamfara Sta

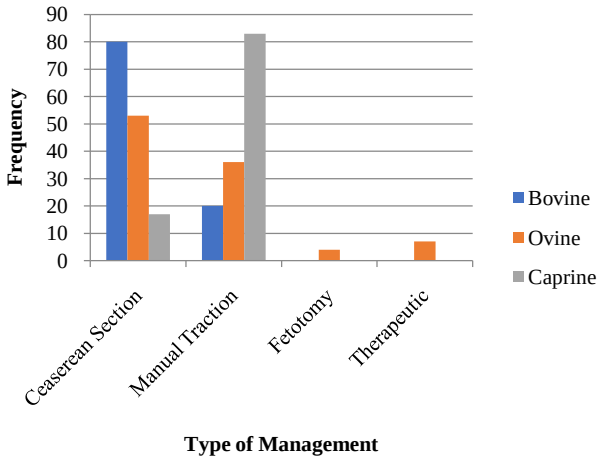


Figure 9: Management of Dystocia in relation to cause and species affected in Gusau Veterinary Clinic, Zamfara State.

Table 4.12: Outcome of management of dystocia in relation to cause and species affected in Gusau Veterinary clinic, Zamfara State.

	BOVINE	OVINE	CAPRINE
SURVIVE	60%	65%	75%
DEAD	40%	35%	25%

IV. DISCUSSION

From the result obtained in the study, It has been shown that the prevalence of dystocia within the study period (2010 – 2014) was generally low of about 266 cases (0.9%) of the total cases recorded in Veterinary Teaching hospital of Usmanu Danfodiyo university Sokoto, zonal veterinary clinic Sokoto, zonal veterinary clinic Gusau, Zamfara state and zonal veterinary clinic Birnin kebbi, Kebbi state (total cases 31,106). This is consistent with the report of (Noakes *et al.*, 2001) that the incidence of dystocia is generally low, 3% in the cow, 4% in the mare and 3% in the ewe. Also from the study, the prevalence of dystocia in ovine species (74%) is more than in caprine (20%) and bovine species (6%) this is because the high number in the animal species of small ruminants (sheep and goats), is as a result of high number of cases handled in the hospital coupled with the low cost of rearing. This is consistent with the reports of [17] and [18] but contradicts that of [19]. The religious and socio-economic importance of sheep in Northern Nigeria may explain why most inhabitants of Sokoto, Kebbi and Zamfara keep them as it is used during festive periods such as *eld-el kabir*, wedding and naming ceremonies. The number of cattle cases handled within the study period was low despite the report of [20] that, Sokoto State is the second largest cattle producing state in Nigeria. The low numbers of cattle cases handled may probably be due to high cost of rearing cattle in the metropolis as well as the high cost of transporting disease cattle from the rural parts of the state to the Veterinary Hospital. Dystocia was the most prevalent reproductive condition. This is consistent with the reports of [19] in Nsukka and [18] in Maiduguri. In relation to state specific prevalence of dystocia, from the result obtained it shown that Veterinary Teaching Hospital, Usmanu Danfodiyo University, Sokoto had the highest prevalence (4.5%), followed by Zamfara (1.3%), Sokoto (0.9%) then Kebbi (0.4%) this may be as a result of proper record keeping in the hospital. Other factors that can influence the occurrence of dystocia are breed (Sire and Dam), number of fetuses and weight of dam [10]. Out of the identifiable breeds, it was found that dystocia in Sokoto, was more in Ouda than Yankasa, Balami and Cross breeds from the cases reported above, and this may be due to genetic factor. The reason to this is linked to genetic or breed disposition [21]. While in Zamfara and Kebbi, dystocia was more in Yankasa breed than Ouda, Balami, and Cross breeds, and this may be due to high number of the breed and number cases handled in the clinics.

Interestingly, the overall annual prevalence of dystocia occurrence from the result obtained it shown that 2014 (28%) had the highest prevalence followed by 2013 (26%), 2012 (25%) and 2011 (15%) then lastly 2010 (6%) this is as result of improvement of record keeping in the clinics and increased in awareness of veterinary practice. The major causes of dystocia in this obtained result are fetal oversized, abnormal position, narrow birth canal, and twinning. For ovine species, fetal oversized (53%) is the major cause followed by abnormal position (30%) and lastly narrow birth canal/close cervix (17%). This is linked to, in Nigeria, cases of dystocia have been reported to be due to fetal oversize, faulty disposition, partial dilation of the cervix, and fetal moinster/abnormalities [7,8,9].

V. CONCLUSION

Based on the study, there was low level occurrence of dystocia in the north western part of Nigeria. Furthermore, this study revealed ovine species is the most affected species. We also observed that, the most common cause of dystocia in caprine species was due to oversized fetus, while twinning was reported as the most common cause of dystocia in caprine species. Caesarean section is the most common management

in ovine species and manual traction is the most common in caprine species.

VI. RECOMMENDATIONS

It is recommended that more work should done to reduce dystocia occurrence in this area and to enlighten people about cross breeding since the result shows that oversized fetus is the common cause of dystocia in this region and it is due to cross breeding. Also, proper record keeping should be done so as to know the actual total number of cases and in particular dysocia that occur in the area.

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