KNOWLEDGE AND UTILISATION OF HIV/AIDS PREVENTION TECHNIQUES AMONG SEMI-SETTLED PASTORALISTS IN SOUTHWESTERN NIGERIA

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DEDICATION

This project work is dedicated to God the Father, the Son and the Holy Ghost who owns my life and my mother; Ruth Olufunmilayo OLADELE

ABSTRACT

The migratory pattern of Semi-Settled Pastoralists (SSP) encourages HIV/AIDS spread and as well limits access to sources of its information. Most studies on HIV/AIDS prevention have targeted settled individuals to the neglect of SSP; hence, information on extent of use of HIV/AIDS Prevention Techniques (HAPT) by SSP is scanty. Therefore, knowledge and utilisation of HIV/AIDS prevention techniques among the SSP in southwestern Nigeria, were investigated.

Multi stage sampling technique was used to select respondents for the study. The Derived Savannah Areas (DSA) of Ogun and Oyo states were purposively selected due to high concentration of SSP in the area. Fifty percent of the Local Government Areas (LGAs) in the DSA and eight percent of SSP households from the LGAs were randomly chosen to give 94 households for Ogun and 236 for Oyo states. From each household, an available adult was chosen to elicit information. Structured interview schedule was used to collect the data on respondents' personal characteristics, sources of HIV information, knowledge, utilisation and Attitude Towards Utilisation (ATU) of HAPT. Data were analysed using descriptive statistics, composite indices, chi-square, t-test, Pearson product moment correlation and multiple regression analysis at p=0.05.

Mean age of respondents was 38.0 ±13.0 years, 91.8% were married and 100.0% were muslim while 90.0% could speak fulfulde fluently. Eighty percent of the respondents indicated radio as the major source of information on HAPT. Knowledge of HAPT was above mean value (14.0) for 60.6% in Ogun and 52.5% in Oyo. Utilisation of HAPT was above the mean value (7.6 ± 2.3) for 87.2% in Ogun and 41.5% in Oyo.

The ATU of HAPT was favourable among 85.1% of respondents in Ogun compared to 45.8% in Oyo. Mean knowledge of HAPT in Ogun was 15.3 ± 2.0, while it was 13.5 ± 2.3 in Oyo. Mean utilisation of HAPT was 9.2 ± 1.4 in Ogun and 6.9 ± 2.3 in Oyo. Utilisation of HAPT was significantly related to level of education (χ^2= 30.11), knowledge (r = 0.26) and attitude (r = 0.66). Information sources that were significantly related to utilisation of HAPT were mosques (χ^2= 6.12), friends (χ^2= 7.22) and produce customers (χ^2= 7.07). There was significant difference (t = 10.449) in utilisation of HAPT among the respondents in Ogun and Oyo. Attitude (β = 0.16) and knowledge (β =1.12) determined utilisation of HAPT among SSP in Ogun, while number of years of stay in community (β = 3.66), attitude (β = 0.149) and knowledge (β = 0.889) were the significant predictors in Oyo. Years of stay in community (β = 0.036), level of education (β = 0.198) and attitude (β = 2.846) determined utilisation of HAPT across the states.

Semi-settled pastoralists' utilisation of HIV/AIDS prevention techniques was generally high in Ogun than Oyo. Level of education, knowledge of HIV/AIDS prevention techniques and agents like mosques, friends and produce customers enhanced utilisation.

Keywords: HIV/AIDS knowledge utilisation, HIV/AIDS prevention technique, Semi-settled pastoralists.

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CERTIFICATION

I certify that this research work was carried out by Mr. Olajide Taiwo OLADELE in the Department of Agricultural Extension and Rural Development, University of Ibadan. Ibadan

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LIST OF ACRONYMS

AIDS	Acquired Immune Deficiency Syndrome
AnGR	Animal genetic resources
ART	Anti-Retroviral Therapy
ARV	Anti-Retroviral
FAO	Food and Agriculture Organization of the United Nations
FMH	Federal Ministry of Health
HAPT	HIV/AIDS Prevention Techniques
HIV	Human Immunodeficiency Virus
IDU	Injecting Drug Users
IFAD	International Fund for Agricultural Development
LGAs	Local Government Areas
LSSPC	LGAs with Semi-Settled Pastoralists high Concentration
MARPs	Most at Risk Populations
NACA	National Agency for the Control of AIDS
NARHS	National HIV/AIDS Reproductive Health Survey
NPC	Nigeria Population Census
PEPFAR	President's Emergency Plan for AIDS Relief
PLHIV	People Living with HIV
SSP	Semi- Settled Pastoralists
SSPH	Semi-Settled Pastoralists' Households
STIs	Sexually Transmitted Infections

UNAIDS	United Nations Programme on HIV/AIDS
UNESCO	United Nations Educational, Scientific and Cultural Organizatio*n*
UNGASS	United Nations General Assembly Special Session
WHO	World Health Organisation

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

The Acquired Immune Deficiency Syndrome (AIDS) epidemic started in the mid1980s in Africa and it has evolved from a medical curiosity to a worldwide human tragedy and international emergency (*United Nations Educational, Scientific and Cultural Organization [UNESCO]*, 2003). According to Joint United Nations Programme on HIV/AIDS (UNAIDS) /*World Health Organization* [WHO] (2011), 38 million people were living with Human Immunodeficiency Virus (HIV) in 2004 and 20 million had died in sub-Saharan Africa. It is a developmental disaster and a security crisis with social impact more devastating than any war. It has reduced life expectancy by 15 years in sub –Saharan Africa and created more than 14 million orphans. WHO (2011) asserted that sub-Saharan Africa is the most heavily affected region in the world, bearing sixty eight percent of the global burdens. Its impact is wide reaching and even in those parts of the world where the epidemic has been relatively slow to evolve, there are worrying signs of its gathering strength.

With an estimated population of 162,265,000, Nigeria is the most populated country in sub-Saharan Africa, a region which carries the globe's heaviest burden of HIV/AIDS (UNGASS, 2010). The most recent HIV Seroprevalence figure represents about 3.5 million people infected with HIV, ranking Nigeria third among the countries with the highest HIV/AIDS burden in the world, next only to India and South Africa (UNAIDS, 2008). Although the national median prevalence of HIV has

taken a downward turn in recent years, the absolute number of people living with HIV has increased by almost half a million people in three years and AIDS related mortality has also slightly increased in the same period to about 217,148 annual deaths (National Agency for the Control of AIDS [NACA], 2012, and WHO/UNAIDS/United Nations Educational, Scientific and Cultural Organization [UNICEF], 2011). Nigeria has a generalized/mixed HIV epidemic; however, prevalence varies widely across states and rural and urban areas. Concentrated HIV/AIDS epidemics occur in particular geographic regions and within certain segments of the population (PEPFAR, 2010).

HIV/AIDS has spread beyond the first so-called high-risk groups (NACA, 2012), principally affecting vulnerable populations: the poor, the marginalized, young women and children. It both thrives on and fuels inequalities (Gillespie, 1989). It has been made clear that not all population groups are equally susceptible to HIV infection. Some categories are more exposed to HIV risk than others. These categories include truck drivers and people living along highway routes, military personnel, commercial sex workers, the young population and also pastoralists (Barnett and Whiteside, 2006). The worldwide epidemic of HIV/AIDS has dramatically affected livelihoods in rural areas of the developing world, especially in Africa. In response to this, there has been research on how AIDS affect agricultural systems and livelihood in Africa through mechanisms such as sale of capital assets to meet medical treatments, funeral costs and removal of adult labour (Gillespie, 1989, Barnett and Balarkie 1992, Barnett and Whiteside, 2003). More recently, the two-

way nature of linkages between HIV/AIDS and rural livelihood received more attention (Loevinsolin and Gillespie, 2003).

However, there has been very little research on linkages between HIV/AIDS and livestock-related livelihoods and especially the pastoralists whose livelihood is shaped by their dependence on livestock production activities, particularly in Nigeria (White and Robanson, 2000). This is despite the fact that pastoralists represent a significant proportion of the rural population in many countries (such as Kenya and Uganda.) where the effects of HIV/AIDS have long been felt. Specifically, Odebode (2007) pointed out that HIV/AIDS prevalence is higher in some rural areas than urban areas of southwestern Nigeria.

In Kenya, pastoralism has undergone systematic weakening over the past four decades through the effects of HIV/AIDS as a major problem facing pastoral groups in the country, yet there is increasing population affected and infected (Sammy and Mohammed, 2005). Sammy and Mohammed (2005) further revealed that pastoralists' communities in Kenya have not yet accepted the fact that HIV/AIDS is present within them. It is evident in the stigmatisation of victims and the refusal to accept the prevalence of the pandemic. Many pastoralists are hiding behind religion, tradition, and other false shields that they suppose will protect them from infection. Awareness levels are lower and the prevalence rate is higher among the pastoralists than in the rest of the country (IRIN, 2011, Kelemework, 2012 and Fratkin, Nathan and Roth, 2012). There is dearth of information on AIDS prevalence rate among the pastoralists particularly in Nigeria (Fratkin, Nathan and Roth, 2012, UNGASS,

2010). Salma (2010) pointed out that living in the rural areas has left the rural dwellers inadequately informed about HIV/AIDS and how the virus is contracted. This can be attributed to the fact that pastoral communities have limited access to information and where this is available; it may not be properly packaged and disseminated.

UNESCO (2007) pointed out that most of those affected by HIV/AIDS do not understand the disease. Even in the most advanced education systems, children learn about viruses and acquire little understanding about infections during their first years of schooling. General knowledge is important as most of those exposed to the virus do not have that much education, while the illiterate have much less access to information. Nearly a billion people in the world are illiterate and many more are scientifically illiterate in the sense that they know little about the basics of biology and physiology.

Ignorance is a major reason why the epidemic is out of control. The need for prevention education flows from the types of ignorance closely associated with the epidemic, particularly in the most affected countries. Prevention education must make people aware that they are at risk, why and how prevalence can be reduced (Ladipo, 1999).

1.2 **Statement of the research problem**

The Sudan and Guinea savannah regions (Sudano- sahelian belt) are the traditional home of most Nigeria's ruminant livestock (Alhasan, 1988). However,

observation shows that pastoral nomadism is contracting rapidly in the north and gradually expanding in the middle belt and southern states of Nigeria due to the search for pasture and water by the herdsmen. The previous northern base is gradually shifting to the southern and middle belt zones, not minding higher tsetse fly infestation in the zone, which is a threat to the survival of the livestock in the area than the northern home base (Machika, 2010). The pastoralists usually concentrate in the rural areas due to its low population density and large fallow land area. Pastoralists' population is higher in Oyo and Ogun states because of the abundance of derived savannah vegetation that provide sufficient pasture and being less prone to tsetse fly infestation than other states in the southwestern Nigeria (Ega and Erhabor, 1998; Oladele, 2004 and Omotayo, 2002). Suleiman (1988) reported that in Nigeria, 30% of the pastoralists are fully settled or sedentarised, 50% are semi-nomadic/semi-settled and only 20% are truly nomadic. Awogbade (1988) emphasised that out of the different categories of pastoralists, the transhumant (semi-settled) pastoralist is the most vulnerable to HIV/AIDS.

Anecdotal evidences suggest that semi-settled pastoralists are highly susceptible to HIV/AIDS due to factors such as migratory life style, casual sexual networking, frequent conflict with other pastoralists and crop farmers along the pastoral corridor (that usually involve shedding of blood), tattooing practices, using of knives for body scarification for medicinal purposes and being a socially marginalised group that are not usually reached in many health intervention programmes (ACCORD, 2012). Haslwimmer (2004) reported low knowledge of HIV/AIDS prevention techniques

among settled and semi-settled pastoralists in Uganda. In Kenya, IRIN (2011) reported HIV/AIDS prevalence rate of 11.4 percent among the pastoralist communities in Turkana district, compared with the national prevalence rate of 6.7 percent. In Nigeria, there is dearth of information on pastoralists' knowledge and utilisation of HIV/AIDS prevention techniques (UNGASS, 2010). Adelore, et.al. (2006) pointed out that despite the exposure of some rural areas in southwestern Nigeria to HIV/AIDS media sensitisation programme, there were no positive changes in the rural behavioural patterns to: having sex with more than one intimate partner, usage of condom during casual sexual encounter and re-using of blades for nail cutting.

The effectiveness of HIV/AIDS prevention techniques among semi-settled pastoralists is critically dependent on their knowledge which is also related to their behaviour. This is based on the fact that the awareness of semi-settled pastoralists will influence their knowledge and the kind of attitude they have towards HIV/AIDS prevention. Knowledge of a concept, tool or innovation occurs when an individual knows both its function and application (Rogers, 2003). Its application or "how-to" knowledge begins with the understanding of the examples and activities related to HIV/AIDS prevention. Knowledge and awareness are generally considered prerequisites to adoption of new technologies and change agent success in securing adoption is related to clients' knowledge of the innovation (Rogers, 2003). The same can be applied to HIV/AIDS scenario where several efforts in the form of practices are spread to mitigate the pandemic. This research work therefore determines the

knowledge and utilisation of HIV/AIDS prevention techniques among semi-settled pastoralists in southwestern Nigeria. The following research questions were put forward:

i. What are the personal characteristics of semi-settled pastoralists in the study area?
ii. What is the socio-economic status of semi-settled pastoralists in the study area?
iii. What are the sources of information on HIV/AIDS prevention techniques that are available to semi-settled pastoralists in the study area?
iv. What is the semi-settled pastoralists' knowledge level about HIV/ AIDS prevention techniques in the study area?
v. What is the semi-settled pastoralists' attitude towards the utilisation of HIV/AIDS prevention techniques?
vi. What is the semi-settled pastoralists' level of utilisation of HIV/AIDS prevention techniques?
vii. What are the constraints to the utilisation of HIV/AIDS prevention techniques among semi-settled pastoralists in the study area?
viii. Are there differences in the utilisation of HIV/AIDS prevention techniques by semi-settled pastoralists in Ogun and Oyo states?

1.3 Objective of the study

The general objective of this study is to determine the knowledge and utilisation of HIV/AIDS prevention techniques among semi-settled pastoralists in southwestern Nigeria.

1.3.1 Specific objectives

The specific objectives of this study are to:

i. identify personal characteristics of semi-settled pastoralists;
ii. determine socio-economic status of the semi-settled pastoralists in the study area;
iii. identify the sources of information on HIV/AIDS prevention techniques that are available to semi-settled pastoralists;
iv. ascertain knowledge of semi-settled pastoralists on HIV/AIDS prevention techniques;
v. determine the attitude of semi-settled pastoralists towards utilisation of HIV/AIDS prevention techniques.
vi. determine the level of utilisation of HIV/AIDS prevention techniques among the semi-settled pastoralists;
vii. identify constraints to the utilisation of HIV/AIDS prevention techniques among the semi-settled pastoralists; and
viii. determine the differences in the utilisation of HIV/AIDS prevention techniques by semi-settled pastoralists in Ogun and Oyo states.

1.4 Hypotheses of the study

1. There is no significant relationship between personal characteristics and utilisation of HIV/AIDS prevention techniques by semi-settled pastoralists
2. There is no significant relationship between socio-economic status and utilisation of HIV/AIDS prevention techniques by semi-settled pastoralists
3. There is no significant relationship between sources of information and utilisation of HIV/AIDS prevention techniques by the semi-settled pastoralists
4. There is no significant relationship between knowledge and utilisation of HIV/AIDS prevention techniques by semi-settled pastoralists
5. There is no significant relationship between attitude towards utilisation of HIV/AIDS prevention techniques and utilisation of HIV/AIDS prevention techniques by semi-settled pastoralists
6. There is no significant difference in the utilisation of HIV/AIDS prevention techniques by semi-settled pastoralists in Oyo and Ogun states

1.5 Justification of the study

The alarming rate at which human and capital assets are lost through HIV/AIDS call for a need to ascertain the level of knowledge of HIV/AIDS prevention techniques among a category of the usually marginalised group, the pastoralists. Data collected on the knowledge of HIV/AIDS prevention techniques among semi-settled pastoralists revealed the degree of urgency required by the

concerned stakeholders to reach or improve the level of knowledge of the semi-settled pastoralists about HIV/AIDS prevention techniques.

The study is significant in the sense that it revealed the strength and weakness of the sources of information available to semi-settled pastoralists and thereby suggests appropriate source(s) of information to be used for pastoralists on health or sex related matters. It can act as guideline in designing health communication packages for the pastoralists.

The study identified the underlying behavioural change which is the concept of knowledge that explains the theory of planned behaviour as an attempt to predict human behaviour by looking at attitude toward the behaviour, intention to perform the behaviour, perceived social norms and control. Also, the study highlighted theory of reasoned action among semi-settled pastoralist as it relates to HIV/AIDS prevention in terms of their attitude and social norms while, theory of self-efficacy, posits that people are more likely to perform a behaviour if they think they can do it successfully. Extension services towards semi-settled pastoralists will become more proactive in the areas of HIV/AIDS prevention as these messages would address the need areas identified with this category of client for extension services.

It revealed the constraints to the utilisation of knowledge of HIV/AIDS prevention techniques among pastoralists and consequently become eye-opener to concerned stakeholders of means of combating factors militating against the use of HIV/AIDS prevention techniques among semi-settled pastoralists.

Data collected on the participation of the semi-settled pastoralists in social organisation revealed the organisation which government and non-governmental organisations can partner with in reaching the semi-settled pastoralists in intervention programmes.

1.6 Definition of terms

Acquired Immune Deficiency Syndrome (AIDS): - is an infectious disease caused by the human immunodeficiency virus (HIV). AIDS is a late stage of HIV infection. It reflects severe damage to the immune system. One or more opportunistic infections will also likely exist. Opportunistic infections are a type of infection that only occur in people with compromised immune systems (University of Virginia, 2014)

The human immunodeficiency virus (HIV) is a retrovirus that infects cells of the immune system, destroying or impairing their function. As the infection progresses, the immune system becomes weaker, and the person becomes more susceptible to infections. The most advanced stage of HIV infection is acquired immunodeficiency syndrome (AIDS). It can take 10-15 years for an HIV-infected person to develop AIDS; antiretroviral drugs can slow down the process even further (WHO, 2013).

Pastoralists: - Men and women for whom herding and caring for herds of large animals account for 75% of the total activity time (Alhassan,1988).

Semi-settled pastoralists (Transhumant): - These are pastoralists who practice regular movement of herds among fixed points in order to exploit the seasonal availability of pastures (Mohammed, 2011).

Transhumance agro pastoralists: These are semi-settled pastoralists that practice cropping (Dennis, 2007)

Settled pastoralist: Men and women, who do not respond to cyclical pattern of migration with a smaller herd size (when compared to transhumant pastoralists), breeder of livestock, cultivate crops and have titles to land (Gefu, 1988).

Nomadism: - Is a type of pastoralism. Pastoral nomads follow a seasonal migrating pattern that can vary from year to year in herding their animals. It implies continuous movement in one ecological zone. It is any type of existence characterized by the absence of fixed domicile (Gerald, 1998).

Knowledge: - Is the appropriate collection of information, such that its intent is to be useful. Knowledge is the confident understanding of a subject, potentially with the ability to use it for a specific purpose.

Utilisation: - The use of knowledge substantiated through research in addressing and solving sexual and reproductive health problems. (www.who.int/reproductive-health/publications/trip/index.html)

Prevention Techniques: - Measures to help protect individuals from being infected with the human immunodeficiency virus and or to halt transmission of HIV/AIDS from person to person (Maria, 2013).

Socio-economic Status: - The position that an individual or family occupies with reference to the prevailing average standards of cultural possession and participation in the group activities of the community (Akinbile, 2007).

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter reviews literature and starts with the concept of pastoralism, followed by pastoralists and development process in Nigeria and characteristics of pastoralists. It also reviews historical background of Fulani pastoralists in Nigeria and regional aspects of migration in the humid zones. The chapter also reviews the two – way links between agriculture and health, the concept of HIV/AIDS as well as HIV prevalence. The chapter ends with review of HIV issues in livestock sub-sector, coping mechanism in livestock, susceptibility and resistance of pastoralists to HIV infection and prevention techniques.

2.2 The concept of pastoralism

Pastoralism is the use of extensive grazing on rangelands for livestock production. Dennis (2007) defined pastoralism as a subsistence pattern which people make their living by tending and herding herds of large animals. Pastoralism is the branch of agriculture concerned with the raising of livestock. It is animal husbandry: the care, tending and use of animals such as camels, goats, cattle, yaks, llamas, and sheep. Cattle, goat and sheep are the common animals reared by pastoralists in Nigeria. "Pastoralism" generally has a mobile aspect, moving the herds in search of fresh pasture and water. Pastoralism is a successful strategy to support a population on less productive land, and adapts well to the environment (Moran, 2006).

Pastoralists have been defined as those for whom the herding and caring for animals account for 75% of the total activity time and also provide over 80% total income. Milk and dairy product supply over twenty percent of calorie intake of the pastoralists (Alhassan, 1988). Pastoral production system are those in which fifty percent of gross household revenue (that is the total value of marketed production plus the estimated value of subsistence production consumed within the household) comes from livestock or livestock related activities (Swift, 2006).

Pastoral societies are those in which a sizeable proportion of their subsistence is based on the herding of animals within a set of spatially dispersed natural resources (Gerald, 1998). The species of animal vary with the region of the world but they are all domesticated herbivores that normally live in herds and eat grass or other abundant plant food (Goe, 2005). Nigeria is one of the four leading livestock producers in Sub-Sahara. In 1988, the country had over 12,200,000 cattle, 13,200,000 sheep, 26,000,000 goats, and 18,000 camels (Ismail, 2012).

Pastoralism as a 'mode of production has existed for hundreds of years under varying ecological conditions. Pastoralists inhabit zones where the potential for crop cultivation is limited due to low and highly variable rainfall conditions, steep terrain or extreme temperatures. Within this unpredictable, vulnerable and dynamic environment, they have developed successful mechanisms of adaptation to maintain an ecological balance between themselves and the natural environment. There are nearly 200 million pastoralists in the world generating income where conventional farming is limited or not possible (International Fund for Agricultural Development

(IFAD), 2009). Nearly 50% of the world's pastoralists are found in Africa (Fratkin, 2001). The geographical area that pastoralists inhabit is usually large compared to their population size (Kelemework, 2012). However, pastoral communities are marginalized and generally not given due consideration in wider socio-political analysis. Although the livelihoods of these communities are vulnerable to climate change, shifting global markets, population growth and increased competition for land and other natural resources, pastoralism remains a viable natural resource management system, and understating its rationale, importance and dynamics is a key element in efforts to reduce poverty (IFAD, 2009).

In Nigeria, pastoral production is an economic, social, socio-cultural activity. Apart from providing food, income and employment for the majority of Nigeria's rural dwellers, pastoral production accounts for approximately 40% of the national income derived from agricultural production (Gefu, 1988). Pastoralists' role in the supply of 'nono' to the rural and urban centers on daily basis to meet nutritional needs of low income group needs no emphasis (Emovon, 1988).

There are essentially two forms of pastoralism: nomadism and transhumance (Oladele, 2004). Pastoral nomads follow a seasonal migratory pattern that can vary from year to year. Gerald (1998) described nomadism to imply continuous movement in one ecological zone.

Transhumance is the regular movement of herds among fixed points in order to exploit the seasonal availability of pastures. Transhumance pastoralists follow a cyclical pattern of migration that usually takes them to cool highland valleys in the

summer and warmer lowland valleys in the winter (Dennis, 2007). Gerald (1998) described transhumance as a seasonal movement between two or more ecological zones way of life involving extensive movement from one grazing area to another in response to variation in terrain and climate in order to provide the best possible condition for their livestock.The rest of the group of pastoralists is able to remain in the same location which results in longer-standing housing.

Not all pastoralists' societies can be accurately described as following a nomadic or transhumant way of life. As conditions change, pastoralists usually adjust. This can result in a traditionally nomadic society or some families within it becoming more or less transhumant in their migratory patterns if the opportunity arises. Likewise, a society that prefers a transhumant way of life may be forced by circumstances to change to a nomadic pattern for some or all of its livestock (Dennis, 2007).

Pastoralists may be described as nomadic, semi-settled pastoralists (transhumant) or settled (sedentary agro pastoralists) according to the degree of mobility. The semi-settled pastoralists are sometimes called transhumant agro pastoralists if they also practice cropping (FAO, 2003).

Gefu (1988) reported that in Nigeria 30% of the pastoralists are fully settled or sedentarised, 50% are semi-nomadic and only 20% are truly nomadic. The semi-nomadic group practice transhumance- the seasonal migration of livestock and the people who tend them, from one home based to another, in search of good pasture during the dry season and then return to the home based at the beginning of the rains.

The nomadic groups on the other hand, are people with no fixed abode, who move with their livestock from place to place, according to the state of pasturage or food supply. NPC (2006) described nomads as persons who migrate from place to place in search of pasture for their animals. Duration of stay of nomads in a particular place ranges between a few days to one or two years.

However, it should also be noted that there is no pastoral or even intensive livestock system anywhere where movement of animals from one area to another does not take place as a routine management practice (Suleiman, 1988). Akinpelu (1994) refers to any type of existence characterized by the absence of a fixed domicile as nomadism and identified three categories of nomadic groups in Nigeria as hunter/food gatherers, itinerant fishermen, and pastoralists. Furthermore in Nigeria, there are five nomadic tribes namely: the Fulani (with population of 5.3 million), the Shuwa (with population of 1.0 million), the Buduman (with population of 35,001), the Kwayam (with population of 20,000) and the Badawi (with population yet to be established) (UNESCO, 2007).

Awogbade (1988), by relating differential mobility to cultural values, language and socio-economic organization, four broad categories of pastoralists are identified, they are transhumant, settled pastoralists, peasant pastoralists and urban based pastoralists. The peasant pastoralists are essentially farmers who have primary claims to land resources, and on which his livestock can graze uncontested. Herding is not his specialty and such may leave the herds in the hands of transhumant pastoralists to tend. Cases of arable farmers spontaneously purchasing cattle for raising is a recent

phenomenon and is widely practised in the rural areas. Urban based pastoralists are the new crops of urban based Nigerians who are systematically transferring personal wealth into livestock production through the land use act of 1978 in which provision is made for Nigerians to acquire up to 5 000 hectares of land for grazing purposes. Awogbade (1988) further added that among the categorization of pastoralists, the most vulnerable group to diseases infection is the transhumant and which is also the focus for development.

Most of the livestock in Nigeria is kept by herders or pastoralists belonging to particular ethnic groups. The most well-known are the Fulani, but there are also Shuwa and Uled Suleiman in the Northeast. These are often referred to as 'nomads' in Nigeria, but in fact many of them are having permanent homes. Often it is the men alone who travel with the herds (National Fadama Development Project II, 2006).

2.3 Pastoralists and development process in Nigeria

Fundamental to understanding livestock development process in Nigeria, is a deep-rooted assumption of colonial and indigenous governments that pastoralism (especially the nomadic form) is incompatible with standards of 'modern' and 'civilized' conduct and values. Pastoralists are often viewed as 'traditional' or primitive in their strategies so any policy which introduced changes in their strategy of production was considered not only necessary but justified.

A variety of arguments have been put forward as a rationale for intervention and development efforts in the area of pastoral nomads, Gefu (1998) listed eight of such

arguments; to raise their standard of living, integrate them into the national society; make them easier to administer; prevent them from poising a military threat to their national government, make them economically self-sufficient; to make them contribute to the national economy; to make pastoral nomadism a 'viable' form of livelihood and to promote better diplomatic relations with the government administering pastoral nomads.

2.4 Characteristics of semi-settled pastoralists

2.4.1 Herding system

Many of the pastoralists have been raising livestock for centuries, and so have evolved a herding system that withstands time, weather, social change, and government intervention. The movement of the pastoralists over the years has led to a pastoral calendar in which the location and the grazing habits of the pastoralists can be predicted.

Oladele, (2004) and Dennis, (2007) revealed that the primary occupation of most semi-settled pastoralists is herding, followed by farming. This corroborates Olawoye (2002) findings that rural dwellers in southwestern Nigeria do engage in more than one livelihood activities. A little percentage, of the semi-settled pastoralists has jobs other than herding or farming. Non-herding jobs are seasonal and opportunistic. The semi-settled pastoralists take advantage of the abundant rain and manure during the wet season to plant corn, millet, sorghum, and home gardens in their backyards (Oladele and Oladele, 2010).

Alhassan, (1988) pointed out that the abundance of pasture during the wet season do reduce the labour demand for herding, consequently the semi-settled pastoralists use farming to absorb the excess of labour during the wet-season, to reduce dependence on farmers, to counter food shortages during an impending drought, and to get farm stubble for their animals. The larger the semi-settled pastoralists herd, the higher the tendency to move to search for good pasture. A negative value is obtained when the frequency of movement is correlated with the extent of cultivation, indicating that the more mobile the semi-settled pastoralists are the less they engage in farming.

2.4.2 Herding task

The household is the simplest, full-time, cattle-breeding unit. Every member of the household contributes to, and benefits from, raising animals (Stenning 1999). Labour is specialized. Production methods are optimized by assigning labour to gender and age groups (Tarig, 2011). Although the pastoralists share the herding task, men's work differs from women's, as adult's work differs from children's. Labour differentiation is not, however, rigid among the pastoralists. Regardless of age or gender, a member of the household learns all the herding skills.

2.4.3 Men's responsibilities

The management of the herd devolves on the men, but children, in their capacity as apprentices, also contribute to the labour-force. Men, who ensure the corporate

existence of the family, are the primary household providers. They protect the animals from carnivores and raiding tribes. They take the animals to long-distance pasture lands. Men also find fodder, dig wells, and make weapons such as guns, knives, swords, herding sticks, bows and arrows. Among the semi-settled pastoralists, the adult males find the grazing-sites, build the camps and the fences, and perform soil and water tests (Frank, 2011).

2.4.4 Women's responsibilities

Culinary responsibility falls on the women who process and cook the food. Girls and women weave mats, spin cotton into thread, make household decorations, and collect herbs and vegetables. They buy food from the market, milk the cows, churn the milk, make the butter, sell milk and butter, and do craft work such as decorating calabashes (Adekoya and Oladele, 1998 and Tarig, 2011). Women also grow vegetables, and raise poultry and non-ruminant stock. Women and girls clean the compound. They look after the disabled animals, fetch water, collect firewood, collect wild-food, help in making temporary shelter, and bear and nurture the children (Awogbade, 1983).

2.4.5 The role of the elderly

Without a specific retirement age, most pastoralists continue herding well past the middle age. When a pastoral Fulani man becomes old and incapable of performing the rigorous herding task, he relinquishes the responsibility to his sons

(Frank, 2011). He then settles in the camp and acts as the chief adviser on family and herding matters. His wealth of experience makes him the trainer of the emerging household heads. An important function of the elderly in the pastoral society is making decisions about grazing movement.

Most pastoralists have a place they consider as a permanent home. Although having fixed residence (NPC, 2006), the pastoralists engage in extensive pastoral movements. Analyses of the pastoral herding system indicate that short-and long-distance trips dominate. These movements are, however, not random, as is the case with pure-nomadic pastoralists. Herding is a monumental task for the pastoralists who are always trying to get the best grazing condition for their animals. Contrary to popular belief, moving with animals is not the delight of the all pastoralists.

Semi-settled pastoralists will remain in a particular place if their livestock needs can be met. However, the more the flock increases the higher the need for movement to far distance. The movement varies according to individual circumstances, which is dictated by the seasonal distribution of grass and water. Mobility is necessary because pastoral resources are non-static and access to them requires movement. The semi-settled pastoralists also move to avoid harmful insects, abominable weather, livestock thieves, tax assessors, and hostile social environment (IFAD, 2009). Figure 2.1 reveals the map of West Africa showing pastoralists' movement.

Animals raised under sedentary conditions are more likely to be hit by natural or artificial disasters. To avoid the transmission of epizootic diseases among the herds, the Fulani steer clear of the herds suspected of carrying diseases (Frantz, 2000). By

extensive spatial grazing, the semi-settled pastoralists optimize spatial resource use, allow the soil to rejuvenate, and prevent permanent land damage.

The semi-settled pastoralists do rely on information gathered by their young adult scouts. Friends and relatives also provide valuable hints about the places they visited. Having lived and grazed for many years, the semi-settled pastoralists have sufficient knowledge of seasonal and grazing conditions in their areas of operation. Prospecting for a grazing space by the semi-settled pastoralists is not a matter of discovering new areas, but of making sure that the areas are unoccupied, are free from recent outbreak of diseases, and are not cut off by encroaching farmers.

Migration starts with a reconnaissance by the household head or his appointee, who, in deploying the herd, primarily considers water, grass, market, safety, diseases, access to roads, and socio ecological conditions, though not necessarily in that order (Oladele and Oladele, 2010). The weather dictates the actual time of departure, but an imminent danger can hasten the out-migration. As the day of the exodus nears, the women start washing the pots, mortars, pestles, calabashes, and beds and bedding. The men begin packing household goods, dismantling the makeshift camps, and preparing the pack bulls. A team is sent to the new site to build the stockades, tithe poles, and beehive huts. Sometimes, the team also digs a well. Cane, sign language, and verbal command are used to drive the animals to the new camp. Although many pastoral families migrate together, herds from different families never mix or get lost during migration.

Fabusoro et. al. (2012) identified 12 decisions related to daily livelihoods activities and five-decision process (suggestion, decision, approval, informed and implementer) of the agro-pastoral households in Ogun State. Table 2.1 reveals that men make the entire household decisions except those related to the processing of milk and other domestic chores. Decision on sales of cattle is taken with inputs from the women only if the cattle to be sold belong to woman. Richter (1997) elevate men in household decision making in that in most regions of the world, women are still given a subordinate status to men and in many situations she is dependent on his decision and opinions.

Women make sole decision on home maintenance and upkeep as well as the processing of milk products. Income from the sales of dairy products provides women with regular cash. Men take decision on farming and cultivation. They take decision on grazing land, duration and place of migration solely. Men make initial decision on when to move, where to move to and who to graze the stocks. Men take the decision concerning leasing of land, tenure regime and community relationship along with preventing risks of household. Men are known to perform more political, communication and organizational tasks outside the home as part of the role of a male gender (Fabusoro et. al (2012) and Richter, 1997).

Fulani live in a stratified society with a hierarchy of chieftaincy. Institutionalized political leadership exists, but it does not concentrate power in the hands of the elite. Administrative authority is a function of stable societies,

especially those with predictable resources (Salzman, 1980). The Fulani who have become established in settlements have a cohesive political system.

Table2.1 : Gender and decision making in agro-pastoral households

	Decisions	Suggestion	Decision	Approval	Informed	Implementer
1	Decision on locations settlement		Older men/Men			
2	Decision on grazing locations		Older men/Men		Boys	Men/Boys
3	Decision on sales of cattle, sheep & goat		Older men/Men		Women	Men
4	Decision on duration and place of migration		Older men/Men		Women	Men
5	Purchase of livestock and other resources		Older men/Men		Women	Men
6	Milking of cattle	Men/women	Men	Men	Boys	Men/boys
7	Milk Processing and sales of milk	Women	Women	men	Girls	Women/girls
8	Farming and cultivation		Older men/Men		Everybody	Everybody
9	Sales of farm produce		men		Women	Men
10	Leasing of land		Older men/Men		Women	Men
11	Tenure regime and community relationship		Older men/Men		Women	Men
12	Home maintenance and upkeep		women	Women	Boys/girls	Women

Source: Fabusoro et.al. (2012)

2.4.6 Fulani political system

Contrary to popular belief, the Fulani have identifiable leaders with full or partial decision-making authorities. At the village level, for example, the settled Fulani have the Sarkin Fulani, a title that has existed since the Fulani conquered Northern Nigeria. Among the pastoral Fulani, sociopolitical structure centers on a typology of leadership consisting of the Ardo (the chief or the lineage head) and the Lamido (Ismail, 2012).

The Ardo is invaluable in Fulani oligarchy. He mediates between his people and the constituted authority. He works between the demands of the Fulani and the policies of the government, which often differ sharply from each other. With the repeal of the *Jangali* and the creation of states and local governments in Nigeria, the role of the ardo has become less defined. As the prominence of the ardo diminishes, so does the influence of his superior, the *Lamido*.

The Ardo is a subordinate of the *Lamido*, who is the clan head. The Lamido governs his people and adjudicates the land according to the *Shari'a* laws. He acts as the spiritual head of the Fulani. His role as a learned man allows him to be the judge, the *Imam*, and the arbitrator. Like the *Ardo*, the *Lamido* is stripped of his feudal powers and responsibilities by the Penal Code (the modern law). Among today's Fulani, the *Lamido*, chosen by the king-makers, is less feudalistic and aristocratic

2.4.7 Pastoral social organisation

The semi-settled pastoralists belong to different social organisations. In southwestern Nigeria the common social pastoralists groups are Miyetti Allah, Al-Haya, Boroge, Fulani Hausa and Fulani Kastina/Kano (Ismail, 2013). Interview conducted during administration of interview schedule revealed that Miyetti Allah is the most prominent social organisation among the semi-settled pastoralists.

Among other objectives of pastoralists' participation in social organisation include:

- Advocating on behalf of pastoralists at Federal, State and/or State level (s)
- Dissemination of information relevant to animal and human health
- Settling conflicts among pastoralists, and other member of their immediate community.

2.4.8 Pastoral calendar

At sunrise, animals are freed from the tether and taken out to graze. In the afternoon, the herders return the animals to the camp for milking and watering. The animals are taken back to graze until sunset. Throughout the night, the pastoral Fulani must keep vigil on the animals, protecting them from night marauders. Daily herding tasks vary according to seasonal changes.

The months of October to December marks the end of the wet-season and the beginning of the dry-season. Relative humidity is low; so is insect population. The

dry soil allows the animals to move without becoming stuck in the mud. Some water and grass in isolated places are available for pastoral use.

In January to February is the harmattan season. Relative humidity nears zero, and the tsetse population is reduced by extreme dryness. During the dry period, fodder quality and quantity fall, compelling animals to intensify bush-stubble grazing. Bushfires that destroy extensive pasturelands are common. Water becomes scarce and animals lose weight. Uncertainty of food and water necessitates longer grazing hours, splitting of the herd, and frequent visits to permanent water sources.

The months of March and April are the hottest and toughest months for the pastoralists. The condition of the cattle is at its sub-optimal level. Widespread fires in the range worsen the pasture situation. Herds no longer select grass but make do with what is available. Because of insufficient rains, animals' urine and feaces 'burn' the soil, further reducing the amount of forage (Okukenu, 2000). Excessive ambient heat compels the pastoralists to graze only in the evening and at night.

In the months of May to June is the end of the hot season and the beginning of the rainy season. Vegetation begins to appear. The cattle stop eating the old, dry grass. Herders take precaution against animals wandering in the crop field. June to September is the peak of the rainy-season. A resting period for the semi-settled pastoralists, this is also the cattle-breeding season. The herders engage in shorter grazing hours (10:00 a.m. to 4:00 p.m.). Highest milk yields are obtained during this period.

The seasonal calendar of the semi-settled pastoralists affects the stock pressure. The seasonal carrying capacity of the land determines the latitudinal location and the extent of dispersion or congregation of the semi-settled pastoralists. Because water and grass can support a large crowd of people and animals, the pastoralists congregate in the wet-season. The semi-settled pastoralists also converge to flood plain (fadama) in the dry-season. Up to five family units can be found within a kilometer radius from water-points in the dry-season, although a few herders may also be seen grazing solo. The competition for available pasture and water do lead to conflict among the pastoralists (IFAD, 2009 and Oladele, 2004).

In severe weather, even the strongest agnatic lineage among the pastoralists disintegrates, occasionally, to go on separate survival missions. In bad times, the semi-settled pastoralists with large herd size move more rapidly and further into the bush. During the tough months, herd-splitting and regrouping becomes an important survival strategy. By grouping, the pastoralists reinforce reciprocity, camaraderie, and collective defenses against aggression. Stock association allows members to invest in friends and neighbors, to use food which cannot be consumed or stored by a single family, to request collective capital to restock after loss from disaster, and to share moments of distress or happiness. Institutionalized stock association among indigenous pastoralists hinges on a system of loaning (stock patronage or clientage) and gift-giving (stock alliance) (Sonja, 2011). The system helps the pastoralists to reduce risk and to absorb the effects of localized misfortunes by reassembling assets scattered among the group.

Even when it looks static, the herd is dynamically reconstituted. The management of the herds is always in many hands. The semi-settled pastoralists keep more than ninety percent of their herds at the camp-sites. Although the stock belongs to the whole family, each animal in the kraal has a designated owner or inheritor.

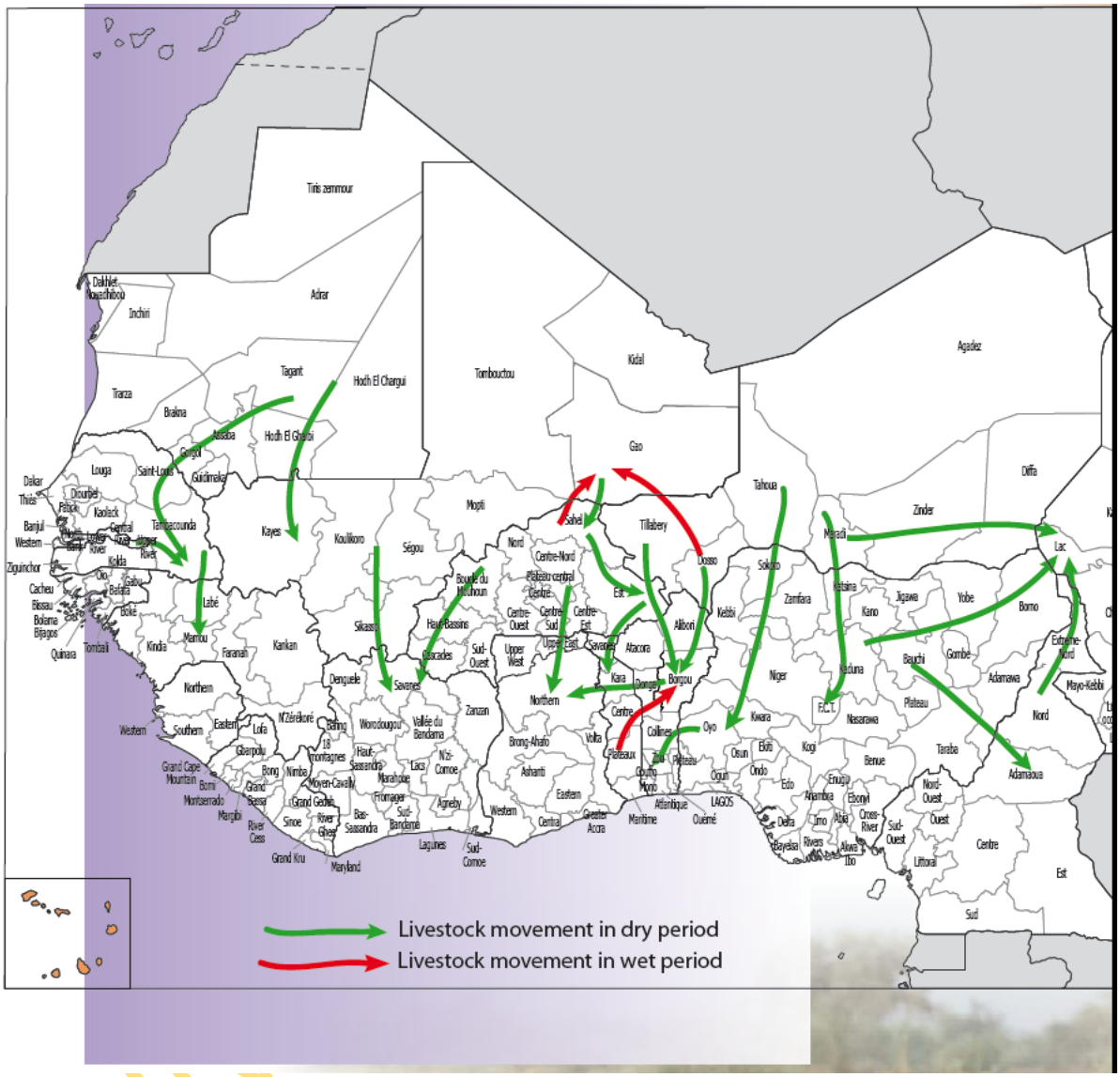

Fig 2.1 Map of West Africa showing pastoralists' movement
Source : SWAC/OECD (2009)

2.5 Knowledge of HIV/AIDS prevention techniques among semi-settled pastoralists

Knowledge is familiarity with someone or something, which can include facts, information, description or skills acquired through experience or education. It can refer to the theoretical or practical understanding of a subject. It can be implicit (as with practical skill or expertise) or explicit (as with the theoretical understanding of a subject); it can be more or less formal or systematic. In philosophy, the study of knowledge is called epistemology; Epistemology is the philosophical study of knowledge and belief. The relationship between belief and knowledge is that a belief is knowledge if the belief is true, and if the believer has a justification (reasonable and necessarily plausible assertions/evidence/guidance) for believing it is true.

The semi-settled had the belief that poor sanitation and poor hygiene predispose both animal and human being to diseases infection. Consequently, the semi-settled pastoralists esteem good hygiene. Observation at the semi-settled pastoralists' camp during the study revealed that pastoralists exalt personal hygiene. The belief will favour avoidance of reuse of sharp objects which can be a means of transmission and or contracting HIV and blood screening before transfusion.

2.6 Historical background of Fulani Pastoralists in Nigeria

The exact era when Fulani pastoralists first moved into Nigeria is unknown, but it is generally assumed that they first arrived as nomads in the far north between

the 14th and 16th centuries (JAMATAN, 2012). During this early period they were almost certainly confined to a narrow strip along the northern border of what is today Nigeria. The factors preventing their southern expansion remain controversial, but it is likely that attempts to move south of this line would have resulted in major losses from the trypanosomiases (Ega and Erhabor, 1998). Before the spread of firearms in West Africa, human population densities were low and wild animal numbers still high. This would have created a high level of tsetse challenge for the non-trypanotolerant zebu owned by the Fulani (Blench 1998).

Through processes that remain obscure, by the early nineteenth century the Fulani had developed an urban, sedentary class, especially of religious scholars. Their commitment to Islam and the dedication of their followers stimulated the development of an effective military machine. The Jihad of Usman dan Fodio was successfully launched in Sokoto in 1804. Within thirty years, the Hausa kingdoms and a number of peripheral kingdoms, such as Borgu and Nupe, had fallen to the Fulani. This rapidly accentuated the difference between the pastoralists (*Fulʃ e na'i*) and the urban Fulʃe (*Fulʃ e wuro*) (JAMATAN, 2012). The urban Fulani took on many characteristics of the peoples they ruled and gradually lost their language, although they have retained a cultural bond with the pastoralist which persists up to the present. One of the effects of political and military expansion was to clear a way for the southward movement of pastoralists. At this period the herders could only exploit the pastures of the northern wetlands (such as the Hadejia-Jama'are river basin) and the subhumid 'Middle Belt' in the dry season -when the rains came, the

bulk of the herds would be sent northwards into the semi-arid zone to prevent diseases carried by tsetse and other biting flies. After the pacification of the Nupe hinterland and the establishment of Raba as a capital of the Fulani in the 1820s, pastoralists began to move down to the low-lying pastures along the Niger River (RIM, 1999). They may even have pressed further into the derived savannah of northern Oyo (Roger and Mallam, 1994)

More attractive, however, were the high altitude grasslands, since disease risks were lower and pastures more palatable for the zebu. The Fulani began to settle at the plains around the Emirate of Bauchi and move up onto the grasslands of the Jos Plateau (Morrison 1999). The second impetus to southward expansion of the pastoralists was the relative security of the colonial era. The threat of armed raids on grazing herds was largely eliminated, a factor which, according to Awogbade (1983), had kept the herds off the Jos Plateau until the colonial era. This was combined with the growth of entrepôts around railheads and a parallel expansion of Hausa traders who created a market for dairy products and acted as entrepreneurs in the livestock trade.

More controversial is the role played by disease. There is little doubt that zebu cattle are progressively threatened by disease in more humid regions -however, the exact diseases and factors responsible remain disputed (Tariga, 2011). The colonial regime instituted both tsetse control measures and made available a range of new veterinary medicines. The tsetse control programmes themselves may have opened new pastures. Alternatively, the expansion of population in the Middle Belt

coincidentally acted to eliminate both the vectors (by hunting out the wild animals) and the forest habitats (cut down for agricultural land) of the tsetse fly. By the time of independence in 1960, the Fulani had begun to stay all year round in the derived savannah north of Oyo town and to line both banks of the Niger-Benue system (Roger and Mallam, 1994).

During the decades 1960-1990 a new force began to come into play -the expansion of cultivation in the semi-arid zone. The semi-arid zone has always been more populous than the Middle Belt, as the major location for the towns' central to the Hausa Emirates. However, projecting back the census figure to the pre-colonial era suggests that the human population for the whole Nigerian region may have been as low as five million in the late nineteenth century. Comparison with the 1991 figure of 88.5 million makes it clear how pastoralists and cultivators could have co-existed in the earlier period. As the pressure on arable land in the semi-arid zone increased, soil fertility decreased. Farmers were obliged to move to regions of unclear bush or to increase their holding size, a problematic strategy in most areas. This evidently tended to exclude the mobile pastoralists who traditionally treated uncultivated bush as common resource. Pastoralists were then forced to seek new pastures, either further south or in neighbouring West African countries (Blench, 1998).

2.7 Regional aspects of Migration in the humid zones

The classic stereotype of the Fulani migrations common in the colonial period was a seasonal migration between the semi-arid north and the dry-season pastures

along the Niger-Benue system (RIM, 1999). As the rains gathered pace, the tsetse populations expanded and herders were driven back northwards. Despite this, the gradual exploration of southern pastures led to individuals discovering methods of remaining in these regions all year round. The movement into the south-west was markedly earlier than in the centre and south-east of the country for both ecological and religious/cultural reasons. The climatic regime of the south-west is such that the derived savanna loops southwards west of Oyo, almost reaching the coast in Benin and the Togo Republic. This creates relatively open land without the high humidity associated with forest proper and therefore reduces the disease risk to zebu cattle (Blench, 1999 and Tarig, 2011). Combined with the ecology were cultural factors, particularly Islam. Islam is widespread among the Yoruba and dominant in Ilorin and the surrounding area where the pastoralists first entered the region. Since almost all the Fulani are also Muslim, the potential for establishing exchange relations with the local population was greater than further east. In regions where Islam has had virtually no impact, among the Igbo and Cross River peoples, such relationships are harder to build and conflicts more likely to arise.

2.7.1 The south-west

In the south-west, Fulani pastoralists were established early in the nineteenth century in the region of Borgu. The semi-arid savannas of Borgu, the sparsely populated region between Ilorin and the Muslim courts of Nikki and Kande (in present-day Benin) favoured the development of large herds of keteku cattle (a

stabilised cross between the zebu and the trypanotolerant humpless breeds) (Blench, 1999). From there, the Fulani moved to the region around Oyo and virtually as far as Abeokuta in the colonial era. Three main groups can be identified in the derived savannah north of Oyo;

- The Borgu'en, agro-pastoralists, who herd a mixture of zebu and keteku, moved in from the hinterland of Ilorin in the 1960s and are now more or less settled in the Saki area of Oyo state. They have developed exchange relationships with the local communities and speak fluent Yoruba, although the older generation still retains some Fulfulde and Hausa. Crop farming has become so important to their household economy that they grow cash crops as well as staples. They still have some cattle, and generate additional income by selling *wara* (cheese) to the Yoruba.
- The Hausa'en, who are originally from the Sokoto area, began to arrive in 1974/5, when they were driven south by the drought. Originally they herded Sokoto Gudali cattle but they are now adapting their herds to include local breeds. Like the Borgu'en, they are beginning to farm and to adopt other aspects of local culture.
- A third wave of Fulani, a composite of many clans, began to arrive from the Sokoto region in the 1980s, again impelled by the failure of the rains. The principal *le*ÏÏ *i* (clans) represented in these movements were the Daneeji, Galeeji, Silsilbe, and Natirʃe. Slightly to the east, in a parallel movement, clans from the Kano-Katsina region, most notably the Pagaya'en and Jawʃe, have moved into the region between Ilorin and Kabba (RIM, 1999 and Awogbade, 1983). They have not yet settled, and are tending to come into conflict with local farmers and with the established Fulani.

Further south, around Abeokuta, there appear to be two historical layers of Fulani: residents who have been settled since the 1960s (Roger and Mallam, 1994), and a second wave following the drought of the 1980s. During the first wave, some Fulani were brought to herd cattle owned by Yoruba businessmen, but others came as transhumant pastoralists. They no longer have large herds of cattle, and have now established permanent farms on which they grow subsistence crops. They take on herding contracts with local Yoruba cattle owners, working in exchange for milk and a share of the offspring. Fulani are at present permanently settled around Odeda and Egbado. The second wave of Fulani was not originally cultivators and they presently maintain large herds, selling stock and dairy products for subsistence.

However, the gradual process of incorporation into the community is continuing along the same lines as in earlier periods. For example, 350 Fulani families from Borgu moved into the Iwoye area to settle in late 1989 (Roger and Mallam, 1994). Land was allocated to them by the local community heads, relations with farmers are good and the Fulanis are beginning to build permanent houses. The Lagos area consists of a complex of lagoons, swamps and a sandy beach area dominated by coconut palms. Although the maintenance of cattle under coconut palms is an established practice in East Africa, the humidity of the Lagos region was thought to preclude this in West Africa. Despite the climate, there are two Fulani camps on the coast, both near Badagry (Blench, 1998 and Roger and Mallam, 1994).

2.8 The two-way links between agriculture and health

Agriculture affects health, and health affects agriculture. Agriculture supports health by providing food and nutrition for the world's people and by generating income that can be spent on health care. Yet agriculture production and food consumption can also increase the risk of water related diseases (e.g malaria) and food-borne diseases- as well as health hazards linked with specific agricultural systems and practices, such as infectious animal diseases (avian flu, brucellosis), pesticide poisoning and aflatoxicosis (Rachel and Steve, 2005).

Haslwimmer (2004) pointed out that illness and death from AIDS, malaria, tuberculosis and other diseases reduce agricultural productivity through the loss of labour, knowledge of productive adults, and assets to cope with illness. Because the majority of the world's poor work in agriculture and the poor suffer disproportionately from illness and disease, taking an integrated view of agriculture and health is necessary to address poverty and promote agriculture for development (Gillespie, 1989). The lack of coordination of policy making between agriculture and health undermines efforts to overcome ill health among the rural poor and gives short shrift to agriculture's role in alleviating many of the world's most serious health problems.

2.9 The concept of HIV/AIDS

AIDS is the acronym for: Acquire Immune Deficiency Syndrome, whereas HIV is Human Immunodeficiency Virus. The Virus can enter the human body to weaken

its immune system in which the helper T-cell potentials to fight disease is destroy. All the body fluids contain T-helper cell. The concentration is high in blood, semen and virginal secretion. The human body is henceforth faced with various opportunistic infections finally resulting into death of the infected person. HIV takes 10-12 years to develop into full-blown AIDS disease (UNESCO, 2003).

The origin of AIDS virus has become a matter of intense internationally. NACA (2012) stated that HIV is a virus of undetermined geographic origin. The West claimed that AIDS originated from African green monkey. Oladele (2003) as cited from Whiteside (1996) supported this idea that 'HIV apparently has been present in chimpanzees for thousands of years and evidence has just been suspended, namely, that the virus came originally from living chimpanzees in Central Africa where AIDS got its start in humans. The argument to support how the HIV enters into human from the animal is that virus like HIV can easily mutate into different strains, and they often do. When this happens, viruses that live in animals without infecting humans may produce strains that can cause human disease when they jump into people. Thus, swine flu resulted when a mutate virus jumped from pigs into people and produced a new 'flu' against which the old vaccine was ineffective. Adeyi (2006) felt that there is also a plausible mock of transmission. In Central Africa, chimpanzees are used as food, and blood from carcasses could easily have entered the hunters' bodies through superficial wounds. The continued practice of hunting chimpanzees may possibly introduce new virus into human population! While the West is blaming Africa for the disease, Soviets Union (Russia) is convinced that

AIDS originated in America claiming that the AIDS virus was the product of America chemical warfare research that was mistakenly manufactured in a chemical weapon laboratory. It was also linked to the West, such as homosexuality. After all, the AIDS virus was first identified among the homosexual in the United States in 1981.

Oladele (2003) viewed that it is indeed worthless to continue to accuse and blame others for source the disease. The question of where the virus came from is irrelevant and useless. What is needed is what can be done in order to prevent and control the increase of this deadly plague that threatens humane existence.

2.10 HIV prevalence

2.10.1 National HIV prevalence

The first case of AIDS in Nigeria was reported in 1986 (USAIDS/NIGERIA, 2012 and Adeyi, 2006) thereby establishing the presence of the epidemic in the country. The Federal Ministry of Health (2008) reported that about 7 out of every 1,000 Nigerians are infected with the virus and 1 out of every Nigerians is already suffering from one form of the disease or another. AIDS cases have been reported in all the states in the Federation Consequently, and in line with WHO guidelines, the government adopted ANC sentinel surveillance as the system for assessing the epidemic. Figure 2.2 shows the National HIV prevalence trend (1991-2010) in Nigeria. The first HIV Sentinel Survey in 1991 showed a prevalence of 1.8%. Subsequent sentinel surveys produced prevalence of 3.8% (1993), 4.5% (1996), 5.4%

(1999), 5.8% (2001), 5.0% (2003), 4.4% (2005), 4.6% (2008) and 4.1 % (2010), a trend signalling a general reversal of the epidemic in the country (UNGASS, 2010).

Nigeria's epidemic is generalized (above 1% prevalence among ANC attendees) (UNAIDS, 2010 and USAIDS/NIGERIA 2012), with wide variation of prevalence within the country. An analysis of the 2010 prevalence rates in the country's six geopolitical zones shows that the highest concentration is in the North Central Zone (7.5%) and the lowest prevalence rate is in the North Western Zone, at 2.1%. There are also differences between and within urban and rural areas with prevalence figures in urban areas varying between 2.7% and 18.0%, while that of the rural area range from 0.7% to 21.3%. Socio-demographic differences in the HIV prevalence are also observable with women, youths, and people with low level of formal education being worst affected by the epidemic (USAIDS/NIGERIA, 2012).

With an estimated population of 162,265,000, Nigeria is the most populated country in sub-Saharan Africa, a region which carries the globe's heaviest burden of HIV/AIDS (WIKIPEDIA, 2012). In estimated numbers this represents about 3.5 million people (NPC and ICF Macro, 2008), still keeping Nigeria as the country with the second highest burden of HIV in the world, only after South Africa. Recent studies show a reduction (4.1%) in the 15-24 years age group down from 4.2% in 2008 and 5.8% in 2001. The number of persons requiring ART stands at 1,449,166 in 2011, a decrease from the number requiring same in 2010, attributed mainly to the massive scale up in initiation of PLHIV on ART (USAIDS/NIGERIA, 2012).

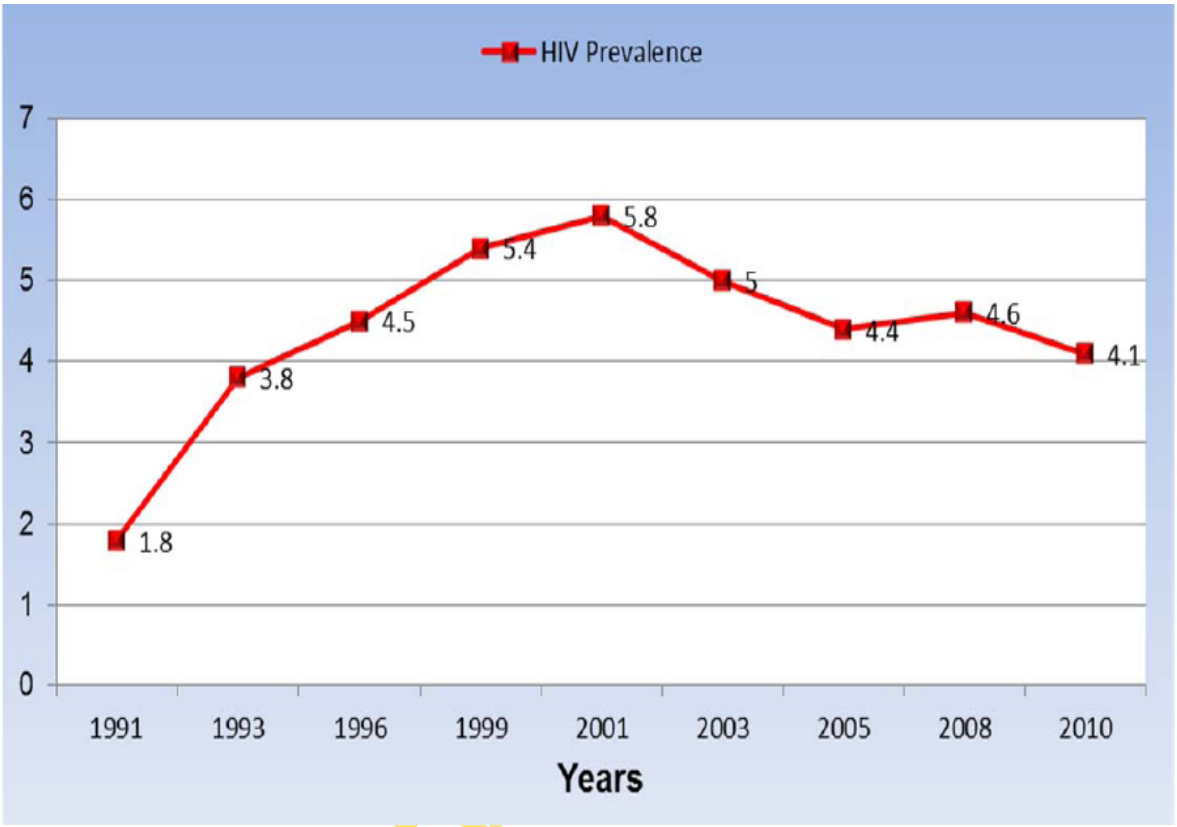

Fig. 2.2 National HIV prevalence trend (1991 - 2010) (Nigeria)

Source: USAIDS/NIGERIA (2012)

2.10.2 HIV Prevalence by age and sex

WHO (2005) stated that HIV prevalence among young people aged 15 – 24 is measured using the HIV prevalence among women attending ANC. Figure 2.3 shows the graph showing HIV prevalence in young women aged 15-24 in Nigeria. Trend analysis of HIV prevalence in this age group has shown a consistent decline from 6% in 2001, plateauing at 4.3% in 2005 and 4.2% in 2010. Within this group, HIV prevalence among young women aged 20 – 24 was found to be higher at 4.6% than that of women aged 15 – 19 at 3%.

Patterns observed in a previous population based shows that gender inequality is (Federal Ministry of Health [Nigeria] (FMH) 2008) an important driver for the epidemic. Figure 2.4 presents the graph of HIV prevalence disaggregated by age and sex in Nigeria.. Prevalence rates were generally higher among females (4.0%) than males (3.2%). Findings also showed higher early vulnerability and infections for girls and women relative to boys and men. Even among key target populations, women showed a higher HIV prevalence than men. The prevalence of HIV among female Injecting Drug Users (IDUs) was almost seven times that of male IDUs – 21.0% vs. 3% (US CENCUS BUREAU, 2006).

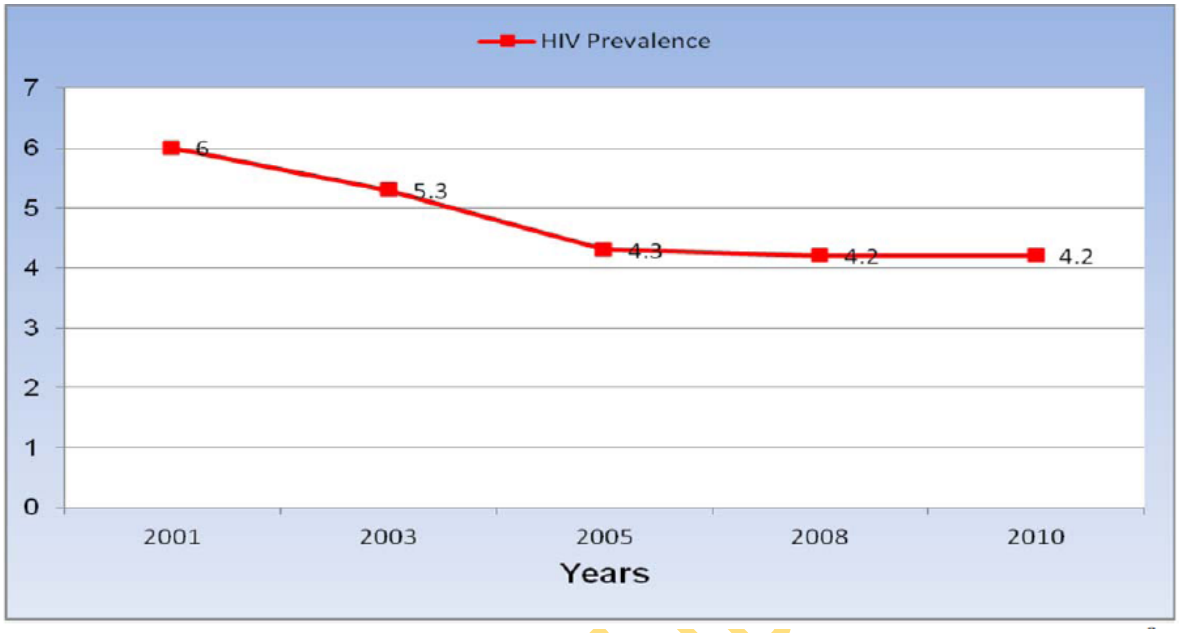

Fig. 2.3 HIV Prevalence in young women aged 15 – 24 (Nigeria)

Source: NARHS (2007)

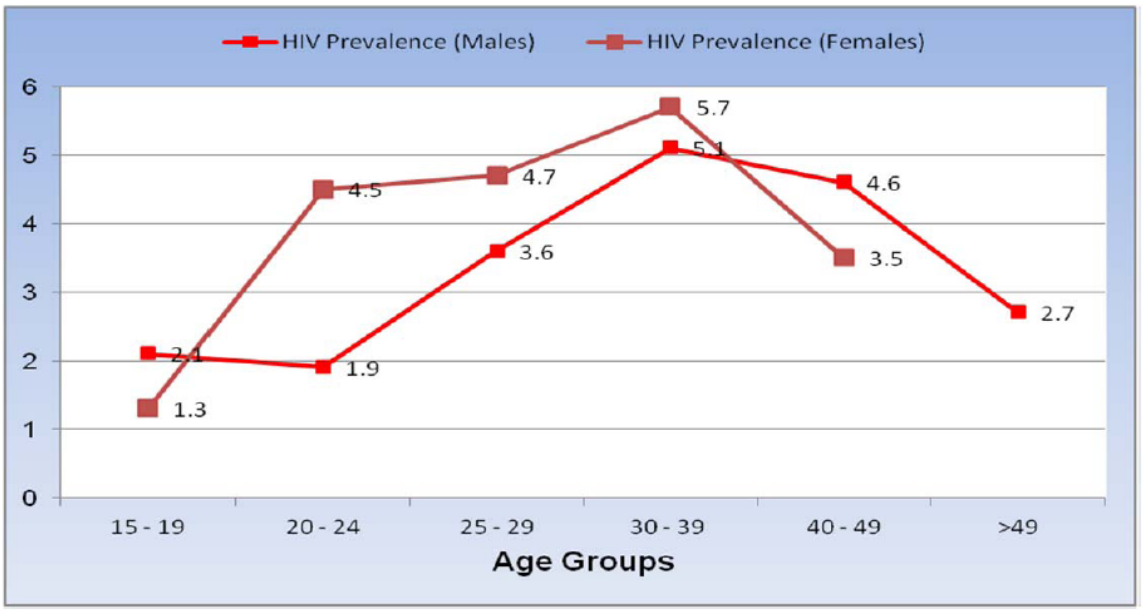

Fig. 2.4 HIV Prevalence disaggregated by age and sex (Nigeria)

Source: NARHS (2007)

2.10.3 HIV Prevalence by geopolitical zones

Figure 2.5 presents the bar chart showing HIV among pregnant women by geopolitical zone. HIV prevalence increased in the North-Central, South-East and South-West Zones between 2008 and 2010. It dropped in North-West (NW) and South-South (SS) but remained stable in the NE (USAIDS/NIGERIA, 2012). However, Ajala (2007) reported that there is no state in south west that has less than 4.6% prevalence of HIV/AIDS.

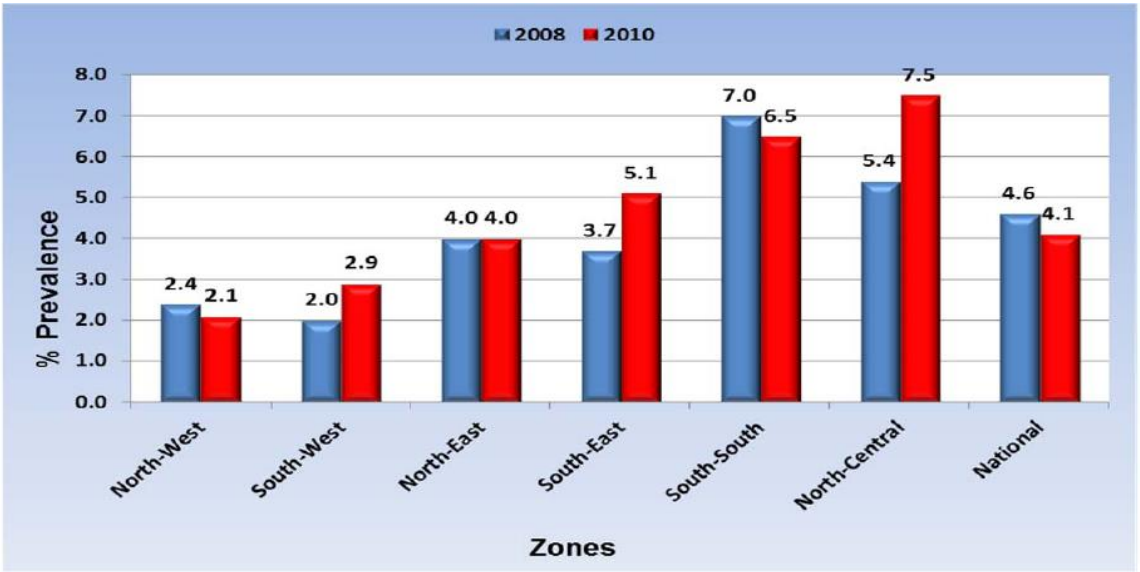

Fig. 2.5: HIV among pregnant women by geopolitical zone (Nigeria)

Source: USAIDS/NIGERIA, 2012

2.10.4: HIV prevalence by states

Five states had prevalence of 8.0% and above while five other states had a low prevalence ranging 1.0 to 2.0%. A total of 16 states and FCT had prevalence higher or above 5%. The three states with the highest rates were Benue, Akwa-Ibom and Bayelsa. Benue, Akwa-Ibom, Bayelsa and Anambra States respectively showed increases in prevalence from 2008 while FCT, Nassarawa and Cross River States experienced a decrease. Figure 2.6 reveals the HIV prevalence by states (Nigeria).

The highest site prevalence of 21.3% was reported from Wannune in Benue state while the lowest prevalence of 0% was reported in four sites namely Kwami (Gombe State), Rano (Kano), Owhelogbo (Delta State) and Ganawuri (Plateau State). Apart from Lagos State, the prevalence was higher in Ogun and Oyo States than other states in the south west (UNAIDS, 2010).

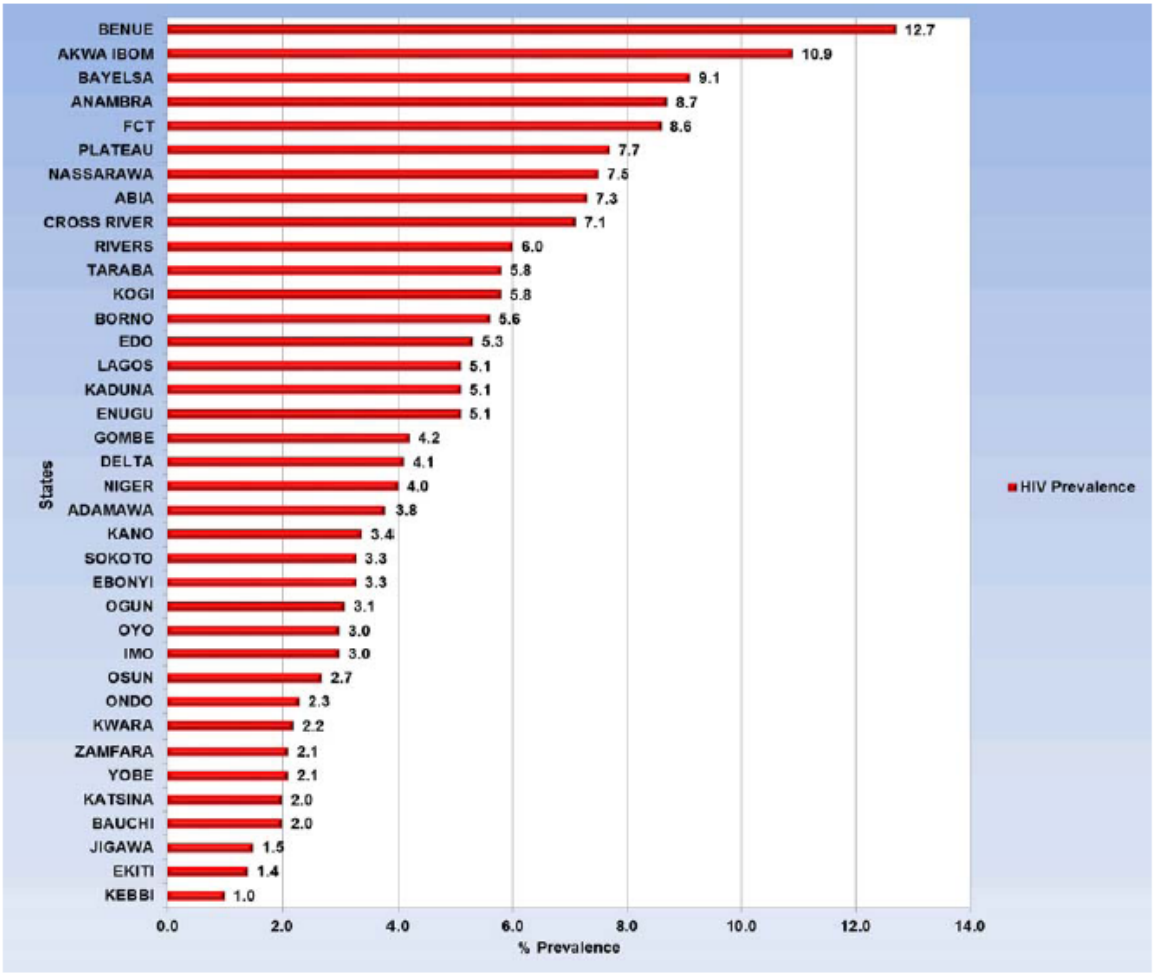

Fig. 2.6: HIV prevalence by states (Nigeria)

Source: UNAIDS (2010)

2.10.5 HIV prevalence by urban and rural areas

USAIDS/NIGERIA, (2012) stated that across the country, urban prevalence of HIV is higher than rural in all six geopolitical zones. Similarly, urban prevalence of HIV was found to be higher in twenty eight states and FCT with the remaining eight states having higher rural prevalence (Emeka, 2008). Figure 2.7 presents HIV prevalence by urban and rural areas (Nigeria). Odebode (2007) and Shodunke, (2007) stated that HIV prevalence is higher in the rural areas than the urban areas of Ogun State. The first case of AIDS reported in Oyo State was in rural area of Saki East Local Government area (Adelore, et.al 2006).

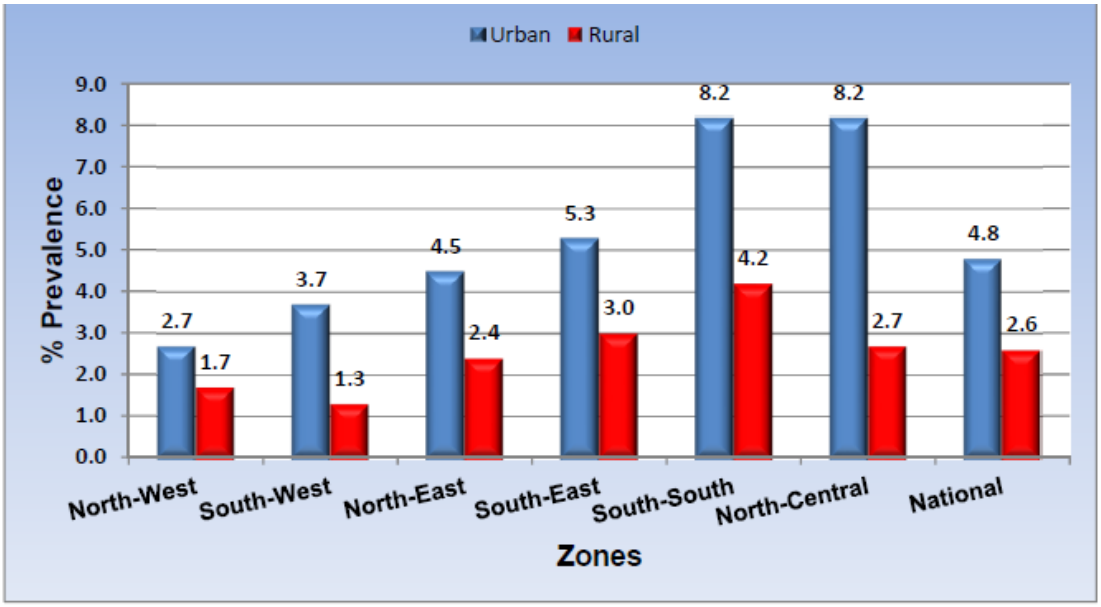

Fig 2.7 HIV prevalence by urban and rural areas (Nigeria)

Source: USAIDS/NIGERIA (2012)

2.10.6 HIV incidence (New infections)

Table 2.1 presents trends in HIV incidence (2008 to 2011). Recent estimates indicate that the annual number of new infections in the country has been on a steady decline, decreasing by 6.1% from 340,015 in 2008 to 319,322 in 2010 and then slightly again by 2.7% to 310,620 in 2011. The decline in Adults mainly fuelled this decline in the total number of new infections, dropping during this period by about 10.2% from 271,151 in 2008 to 243,430 in 2011 while the number of infections in children increased by 4.0% from 2008 to 2010 before declining in 2011 by about 6.2% most likely because of recent scale up activities to improve PMTCT uptake. New infections in females continue to surpass that in males, contributing to about 54.9% of sero-conversions that occurred in 2011 (USAIDS/NIGERIA, 2012).

Table 2.1 Trends in HIV incidence (2008 to 2011)

Population	Year		
	2008	**2010**	**2011**
Total population	340,015	319,322	310,322
Adult >15 years	271,151	247,718	243,430
Children <15 years	68,864	71,604	67,190
Male	N/A	144,258	140,169
Female	N/A	175,064	170,431

Source: USAIDS/NIGERIA, 2012

2.11 HIV Issues in the livestock sub-sector

2.11.1 The importance of the livestock sub-sector

The livestock sub-sector is an important component of the agriculture sector in many developing countries, contributing significantly to agricultural gross domestic product and playing an important role in the economy of many countries. The predominant livestock production systems in sub-Saharan Africa are small-scale, mixed crop-livestock production and livestock-based pastoral systems (FAO, 2003).

In addition to being an important source of food and protein (e.g. meat, milk and milk products, eggs), livestock also serve other valuable functions, including draught power, manure for improving soil fertility, building material and fuel, as well as by-products, such as hides, skins, wool, feathers and hair. In terms of draught power for agricultural production, in developing countries "more than half of arable area is cultivated with the help of draught animal power". Also, over 50 percent of fertilizer used for crop cultivation in developing countries comes from animal manure (Fresco and Steinfeld, 1998). Various kinds of animals have a high socio-cultural value and may be a 'sign of status', (and may be used) for ceremonial slaughter at weddings and funerals, and traditional healers (may) use chicken and goats in various rituals (Engh, Stloukal and Guerny, 2000).

Livestock is important for the livelihoods of people in rural areas and one of the few assets owned by poorer households that may increase in value. Livestock is therefore a source of livelihood security for households and can be a very important resource and source of income` for households. Small livestock (e.g. sheep, goats and poultry) are particularly important for women in terms of providing income

generating opportunities and as an asset (Adekoya and Oladele, 1998). In terms of household food security, meat, dairy, eggs and other livestock products play an important role and ensure good nutrition in HIV-affected households.

2.11.2 The role of AIDS in livestock sub-sector

Though the extent of the impact of AIDS on the livestock sub-sector is not fully understood, it is clear that the epidemic is affecting the sector. Based on the literature, an FAO workshop (FAO, 2005) on HIV and livestock linkages in sub-Saharan Africa reported impacts at household level. For example, "once family savings are exhausted, animals are the main household resource sold to cover medical expenses or funeral costs. Little, however, is known about changes in livestock production systems and pastoral systems resulting from the impacts of HIV and AIDS. FAO (2005) outlines some of the AIDS impacts on the livestock sub-sector:

- Herd sizes may shrink as increasing numbers of animals are slaughtered for funerals or are sold to cover medical expenses. This leads to diminished availability of livestock products for consumption or sale.
- Cropping activities may be negatively affected when draught animals are sold and manure supplies diminish.
- Poor management and limited feed supplies for livestock (e.g. due to reduced crop yields), stemming from labour shortages, can negatively affect livestock production.

- Poorly functioning animal husbandry and veterinary services resulting from HIV-related absenteeism means that animal production and health may be undermined.
- Skills and knowledge about livestock management and production may be lost when adults become ill and die before passing on the information on to their children.
- Certain property inheritance systems can mean that household members (in particular women and children) lose livestock if family members grab assets following the death of the spouse or parent. This resultantly threatens household food and livelihood security.

In addition to the impacts highlighted, another issue is the fact that HIV can impact herd populations and thus diminish available breeding stock. This poses concerns for animal genetic resources (AnGR) in the long term. For example, a study on livestock production and HIV in sub-Saharan Africa points to the fact that those animals from affected households are likely to be sold to traders and not to other livestock owners who might be more likely to adhere to sound breeding practices. Such sales to traders are likely to result in animals being slaughtered or bred indiscriminately, thereby contributing to the threat of a breed/strain (Goe, 2005).

According to SWAC/OECD (2009), another important impact of AIDS is the loss of specialized knowledge of indigenous practices and medicinal herbs for treating diseases. Also, since the number of veterinary extension workers is limited, AIDS-related mortality among workers can have negative implications for livestock and

subsequently the livelihoods of households and communities. Figure 2.8 presents the framework of the impact of HIV and AIDS on livestock.

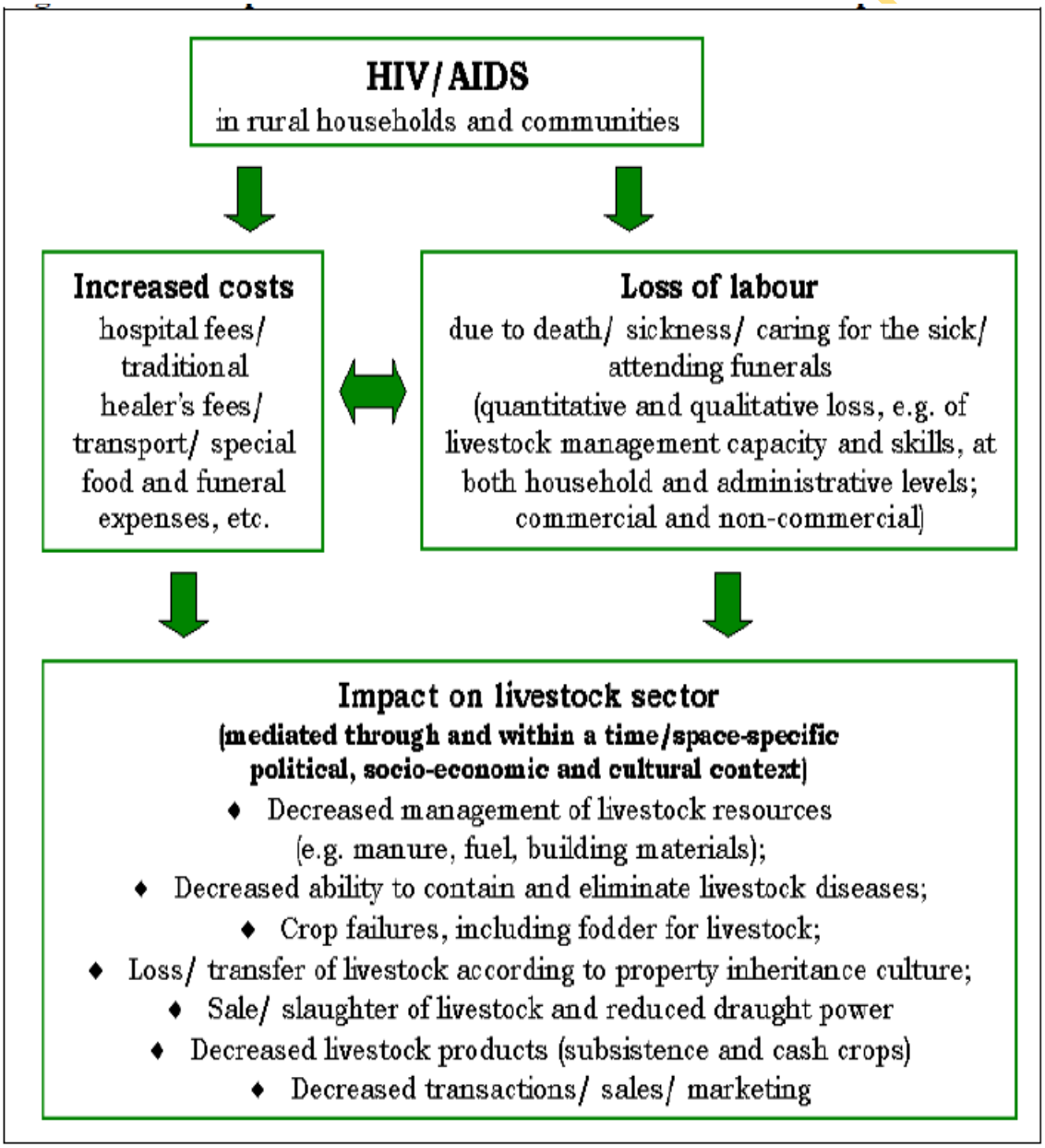

Fig 2.8 The impacts of HIV and AIDS on livestock: a simplified framework
Source: Engh, Stloukal and Guerny, (2000)

2.11.3 Vulnerability to HIV and its impacts in the livestock sub-sector

2.11.3.1 Vulnerability of pastoralists

Despite the wide geographic distribution of pastoralist societies in Africa and in Asia, there are few estimates of their numbers and limited information on HIV prevalence among pastoralists. Pastoralists, similar to crop-livestock farmers, are generally categorized with farmers and therefore there is a lack of data specific to them. There are few published papers on the issue of AIDS and livestock, let alone specific to pastoralists, and much of the information is theoretical and conjectural rather than empirical (Fratkin, Nathan and Roth, 2012). Pastoralists tend to be marginalized populations in generally harsh environments and their low status and remoteness often means that they are not included in government programmes and may not benefit from or be able to access services, including health services. Health services are often not found in very remote areas as it is very costly for governments to establish health care in remote and sparsely populated areas. Pastoralists' populations are difficult to service due to their mobility as well as due to communication and cultural barriers.

As livestock are the basis upon which pastoral societies survive, the necessary slaughter or sale of animals by HIV-affected households can further erode household assets and endanger future livelihoods. HIV-related illness or death can also affect the management of herds and can have negative repercussions for animal production. This can create further food and livelihood insecurity and could lead to behaviours that increase vulnerability to HIV exposure.

Because of the strict gender division of labour in pastoralism, when a husband dies, the widow and orphans may face difficulties in taking over traditionally male tasks, particularly where indigenous knowledge and experience play a role. In cases where animals are "grabbed" by relatives, women and children lose an important livelihood source and may be forced to look for alternative livelihood options. In extreme cases when widows or orphans are destitute, they may resort to transactional sex or sex work to support their livelihoods and resultantly destitute face increased vulnerability to HIV.

2.11.3.2 Vulnerability of mixed crop-livestock systems

Semi-settled pastoralists and livestock raising face somewhat different HIV-related challenges from those affecting nomadic pastoralism. Semi-settled pastoralists are less mobile than pastoralists but animals play an important role in crop production and their loss can lead to food insecurity and poverty:

- The slaughter of animals to cover medical costs or their sale to cover funeral costs can deplete herds and jeopardize food security because animals contribute significantly to household food security.
- Cropping activities can be severely affected due to the sale and slaughter of animals used for draught power or manure.
- Reduced crop yields in turn results in declines in herds due to lack of feed for animals.
- Lack of management skills and knowledge of livestock raising by surviving household members can undermine household livelihood and food security.

Kashaija (2007) pointed out that because livestock is a convertible asset, animals are often the first resources to be sold by HIV-affected households facing livelihood and food insecurity and struggling to meet expenses. This is often exacerbated when crop yields are negatively affected by labour shortages or other factors, such as climate change (e.g. during periods of drought, flooding) or when new crops prove to be problematic. Households may respond to these challenges and hardships by members re-locating in search of income sources and alternative livelihood options. Individuals (mostly young men) may, for example, move to fish landing sites for employment, where they may face the risk of exposure to STIs and HIV.

2.11.4 Impact on livestock management and production

An immediate impact of death and illness is the loss of labour. For the livestock sub-sector this means a reduction in available labour for livestock production,

management and related activities, such as production of crops and fodder. Time spent mourning and attending funerals also undermines available labour for livestock activities and work may be reduced or postponed. For example, a study in Namibia found that in Oshana and Caprivi districts, "mourning time for relatives was reported to range from four to eight days, and for immediate neighbours it is estimated that they sympathize and console the bereaved family for about half the mourning period. The rest of the community has to stop work on the funeral day (Engh, Stloukal, and Guerny, 2000).

In addition to declines in available household labour (when adults fall ill or die), the remaining household members may lack the skills or capacity to sustain livestock management and production as pastoral communities are dependant to a high degree of specialized knowledge, skills and experience as well as collective activities, rather than just networks. Child-headed households or those headed by older people may be most impacted. According to a study in Uganda "the remaining family members often do not have the management skills or knowledge to care for the livestock. This was observed especially where the head of the family, usually the man, had died. The wife and children did not have the time nor the knowledge and financial resources to care adequately for the cattle. The wife often did not have the same access to extension services and other ways of acquiring knowledge as her late husband did (Haslwimmer, 2004). In addition to reduced labour availability due to HIV, impacts include diminished capacity to make future plans and investments with regard to agricultural and livestock production.

2.11.4.1 Impact on herd sizes

HIV can negatively impact herd sizes in pastoral farming as households sell livestock as a coping mechanism. Due to increased medical expenses stemming from HIV-related illness, as well as funeral costs, pastoralists may be forced to sell their animals in order to obtain cash. This has the immediate impact of diminishing herd sizes, and can also have the long-term impact of undermining a future livelihood and food security in pastoralist households.

2.11.4.2 Impact on crop-livestock farming households

Livestock may be kept by both mixed-farm small holders and pastoralists. Awogbade (1988) pointed out that in Nigeria; the urban based pastoralists do grow a range of crops for household consumption, as well as for commercial purposes. Several farmers also own some cattle, as well as goats and some sheep. Poultry is kept by some households for consumption and sale. Though livestock keeping is not the predominant activity for mixed crop-livestock households, the sale of animals and animal products contributes to household income and can support households in meeting expenses, including education and medical care.

` Reduced labour due to HIV can, however, negatively impact livestock activities in crop livestock households. In response, some households may shift to less labour intensive animals; however, studies have shown that even the keeping of small livestock faces challenges due to HIV. For example, the study in Rakai, Uganda

found that many plantations and fields were becoming bush as labour declines meant that they were not properly taken care of. As a result, the number of wild cats (a predator of chickens) in the area increased, posing a threat to households that keep this animal (Haslwimmer, 2004). This has had the resultant impact of undermining this source of household food and income.

2.11.4.3 Impact on livestock and veterinary services

Pastoralists and farmer-herders are not the only groups affected by HIV in the livestock subsector. The staffs of livestock and veterinary services are also vulnerable to infection, mainly because of their mobility and access to personal resources that could be used for sexual networking (Haslwimmer, 2004). Livestock extensionists and veterinarians may spend considerable time away from their homes and may engage in transactional sex during their journeys among pastoralist and crop-livestock communities. HIV-related illness and mortality can undermine the capacity of extension and veterinary services, thus negatively affecting livestock production in affected areas.

The effectiveness of extension and veterinary services is further compromised by high HIV related mortality in livestock-raising communities. For example, a study by FAO (2005) in Namibia found that extension staffs spend an estimated 10 percent of their time attending funerals (Bolognesi, 2007). Meeting between extensionists and farmers or herders were re-scheduled if such coincided with a funeral. If there are

several deaths in a month, particularly in highly affected communities, such meetings were difficult to re-organize.

2.11.4.4 An emerging risk: zoonoses and people living with HIV (PLHIV)

Tuberculosis (TB) is one of the most common secondary infections associated with HIV and is widespread in developing countries. There are different strains of TB and Mycobacterium bovis (bovine TB) is one of them. Research on the linkages between zoonoses and HIV remains largely unexplored, and little research exists on the threat of bovine TB to people in general and People Living with HIV (PLHIV) in particular. Nevertheless, since bovine TB can be transmitted through the air from person to person (causing lung infection), as well as from infected livestock to people, it poses a potential problem for people with weakened immune systems, such as PLHIV involved in livestock raising.

Bovine TB can be transmitted to humans by drinking unpasteurized cow or goat milk. Another possible route of infection is by eating infected organs of slaughtered animals. Since bovine TB can also spread through the air, cattle herders may face high risks of infection through air borne transmission from cow to human (Bolognesi, 2007). Due to the important role of cattle in many countries (particularly in sub-Saharan Africa), both for food and in cultural practices, there are many situations in which people could be vulnerable to bovine TB transmission. For example, “some traditional ceremonial events involve the slaughter of a goat or cow.

It is this close cultural and physical link with cattle that puts rural communities at risk of infection.

Poverty, poor nutrition and unhygienic living conditions are some of the factors favouring the spread of TB. Therefore, improving the living conditions of pastoralists and mixed crop livestock herders is an important goal for the development sector in general, and the agriculture sector in particular, in order to curb the spread of TB in rural areas. These efforts must link with those to detect and eliminate bovine TB among animals, which is an important role of veterinary services. It is also important to increase awareness about the importance of having animals tested in order to reduce risk of spread from cattle to people.

2.12 Coping mechanisms in livestock keeping communities

2.12.1 Community cooperation

Several strategies have been developed by communities and households as they adapt and cope with the impacts of HIV and AIDS. Coping strategies that have shown to be effective have the potential to further mitigate impacts beyond individual households and communities.

This process can be facilitated by awareness raising initiatives in communities, as well as through extension services in affected areas. An important element of coping strategies of households and communities is the formation of groups and cooperation among households. In Rakai district, Uganda, for example, “some self-help groups have been formed spontaneously and some under the aegis of a non-governmental

organization. The members pool their knowledge and give each other confidence and support in undertaking on-farm as well as off-farm income-generating activities (Haslwimmer, 2004). In the same district it was found that in particular, widows and youths were very willing to engage in group activities.

Some potential coping strategies include:

- Pooling labour for driving herds
- Transferring of labour and livestock to assist households in difficulty
- Collective management of water points and rangeland, including networks to collect and exchange information on rainfall and pasture conditions
- Group marketing by households/communities

2.12.2 Changing of stock and management style

In response to HIV-related labour declines, households may adapt their livestock activities by changing to smaller and less labour intensive animals. In Rakai, for example, several farmers have switched to poultry keeping. A study in the district found that "poultry keeping has increased in AIDS-afflicted households; especially those with orphans [with] chickens and eggs […] usually not kept for home consumption, but […] sold to raise some income (Haslwimmer, 2004).

2.13 Susceptibility and resistance of pastoralists to HIV infection

The susceptibility of pastoralists to HIV infection, which relate in essence to pastoralist sexual behaviour, are difficult to generalise about patterns of sexual

behaviour are not intrinsically connected to pastoralism. However, some comments can be made around the interrelated themes of a high degree of 'sexual networking' reported as traditional in some pastoralists groups, evolving patterns of mobility, and conflicts. Other comment can be made about the lack of outreach to pastoralists by preventive health education services, which as a consequence of their geographical, political and cultural marginalisation.

2.13.1 Sexual networking

Social institutions within traditional pastoralist society that promote multiple sexual contracts have been reported in anthropological literature, especially for Moa-speaking group and for the BeHimal of south west Uganda. Coast (2002) summaries for the Maasai; polygymous marriage as a norm; early sexual debit for females with strong social sanctions for non-participation; high levels of sexual networking within and outside of marriage (by unmarried warriors with unmarried girls and wives of elders); non-consensual sex as 'common place' for BaHimal. Elam (1996) have the classic anthropological description of the custom of 'wife –sharing' among all the males of the partrilineage and it seems that this may continue (Morton, 2003 and Haslwimmer, 2004).

This is in a way to say that all pastoralist societies share the orientation: for example the numerous Muslim pastoralists' societies of the world allow polygamy, but generally take a much more negative attitude to adultery and pre-marital sex at least within the pastoral group.

2.13.2 Mobility

Mobility is not an inherent character of a livestock-dependent livelihood, but in the areas of low and highly variable rainfall that today's pastoralists generally inhabit, it is close to being one. So deep is the association that 'pastoralism' itself has only term 'nomadism'. Their perpetual migration, the lack of information on the propagation and the prevention from HIV/AIDS expose them strongly to infection (ACCORD, 2012).

Despite many pressures to sedentary, the majority of the world's pastoralists exhibit some degree of mobility. But mobility itself cannot be equated with risky sexual behaviour, and in this context one can distinguishes four main types of mobility (Morton, 2003).

a) 'Traditional' whole-household pastoral migration (with the main aim of securing grazing and water).

b) Pastoral migration carried out by men, often younger men, on their own, while the rest of the family follow is less mobile lifestyle.

c) Journeys undertaken to market livestock product, or to buy cereal foods and consumable goods. These centres may be far from grazing lands, and generally undertaken by men alone or in groups..

d) Labour migration to non-pastoral employment, generally by men, though occasionally by women, and to a limited but increasing extent by the whole households.

As gross generalization across pastoralists groups, mobility of type (b) is increasing relatively to type (a), for reasons, which include increased cultivation and the desire to access services and food aids. Type (c) is probably increasing as pastoralism becomes increasingly commercialized, and (d) is also increasing labour migration for pastoralists are largely driven by poverty or specific shocks such as drought, and often to the lower end of the labour market, classically in many African countries as night watchmen.

Migration by men alone, particularly to population centres (types C and D) can definitely be regarded as a factor increasing susceptibility to HIV infection. This may be so even when sexual moral within the pastoralists' community are strict. May (2003), in a very interesting discussion of Maasai labour migration to Tanzanian towns, presents equivocal evidence on the extent to which Maaasai migrants interact sexually with non-Maasai women, but concludes that urban migration is a factor increasing susceptibility to HIV among Maasai generally. Talle (1999) notes a minority (perhaps a growing minority) of the Maasai men who make marketing and purchasing trip to a small town have sex with non-Masai prostitutes.

In some pastoralists groups, women also migrate to towns and end up as prostitutes or heavily involved in transactional sex. Talle (1999) notes an increase in prostitutes among Maasai women in Kenya and Tanzania. Even in Muslim pastoralists' societies this may occur (White, 1990). Getachew (2001) suggests that Ethiopian Afar women become prostitutes in Djibouti, and there is some prostitution by Beja women in Port Sudan.

2.13.3 Conflicts

Despite the pastoralists' vital role in global food security and production on lands otherwise unstable to agriculture, pastoral communities around the world are in a persistence state of crisis (Kelemework, 2012). Many pastoralist groups have found themselves caught up in armed conflicts with crop farmers and or other pastoralists (Ogunsanya and Popoola, 1999 and Oladele, 2004). Conflicts can be in terms of traditional patterns of 'conflict-livestock raiding' but also in some cases raiding for women. The social and economic description caused by armed conflict, as well as the direct effects of wife sharing and rape, creates an environment for susceptibility to HIV.

2.13.4 Exclusion from health education

Across the world, there is still a major problem of pastoralists' exclusion from health services. This stems largely from the facts that pastoralists live in remote areas, which are so sparsely populated (leading to high per capital costs) and that many are highly mobile. It also stems from their marginality which does not allow them to lobby effectively for better services, and for many groups cultural-linguistic marginality which means that health services are not delivered in an appropriate form. These problems apply equally to health educational services, which are necessary to effect changes in sexual behaviour and reduce susceptibility to HIV. Coast (2002) discussed the inadequate and inappropriateness of HIV education in

Tanzanian Maasai land. May (2003) shows that even when Maasai move to towns as labour migrant they remain seriously excluded from public information on HIV.

The impossibility of generalizing across pastoralist group must once again be stressed, and care must be taken not to fall into the traps of over-emphasizing exotic sexual practices and attributing unbridled sexually to pastoralists as 'the other'(Talle,1999 and May, 2003). However, there is some evidence that various combinations of new forms of male (and perhaps female) mobility, polygamy and tolerance of extra-marital sex and exclusion from public information about HIV and AIDS are making some pastoralist communities highly susceptible to the spread of HIV. Mechanism by which communities, spontaneously or with outside help, might resist that spread is currently much harder to identify.

2.14 Transmission of HIV

Since HIV mainly exist in blood, semen, virginal secretion and breast milk of people who are infected, any behaviour that causes such body fluid to enter another person's body may cause HIV infection. Under normal condition, skin and mucous membrane are natural barriers against infection. However, those barriers may be damaged by cuts, abrasions, sores or ulcers, all of which are capable of infection.

According to UNICEF (2006) there are three modes of HIV transmission, which are

(a) Sexual transmission

- The HIV in the semen, vaginal secretion or menstrual blood of an infected person may enter the body of another person through the membrane of genitals. Other sexually transmitted by sexual intercourse.
- Homosexual and bi-sexual behaviours are high-risk activities exposing the participants to HIV/AIDS infection.

(b) Transmission due to blood or blood products contaminated with HIV, such as through the following means;

- Intravenous drug users sharing unsterilized syringes and needles
- Transfer of blood products contaminated with HIV
- Syringes or needles used which have not been sterilized or adequately sterilized.
- Other medical instruments that pierce the skin: such as those in dentistry, obstetrics, gynaecology, surgery and acupuncture that have not been sterilized or adequately sterilized before reuse;
- Instrument used in barber shop, beauty parlours, tattooing, pedicure and ear piercing which are not sterilized before reuse;
- Personal items such as razors, electric razors or toothbrushes that are shared.
- Bleeding and physical contact occurs during sports.
- The damage skin of first aid personnel in contact with the infected blood of victims.

(c) Mother to infant transmission

- Transmission of HIV from an infected woman to her fetus or infant which may occur before, during or after birth during breast feeding.

2.15 Prevention techniques

Prevention techniques are measures that can be adopted to avoid transmission and / or contraction of HIV. To avoid contracting or transmitting AIDS the following precautions must be taken:

- Beware of transfusions of blood and blood products.
- Avoid sharing syringes, needles, gauze and absorbent cottons
- Avoid premarital sexual behaviour.
- Having a mutually faithful, monogamous sexual relationship with one partner and avoiding sexual promiscuity.
- Always use high-quality condoms correctly and consistently while having sex.
- HIV infected women should avoid pregnancy and
- Avoid sharing with another person any instrument that may pierce the skin, such as toothbrush, ear piercing needle, razor, and pedicure knife etc.

NACA (2012) pointed out that at present, 80% of HIV-infected persons including AIDS patients were infected sexually. There are three measures effective in preventing HIV infection through sexual means (Glen, Amanda and Tom, 1998); they are:

2.15.1 Abstinence

Abstinence means complete avoidance of sexual activity. It is the most reliable means of preventing the spread of HIV. However, in real life, people have sex for several reasons, including procreation and pleasure. Life-long abstinence is not commonly sexual abstinence.

2.15.2 Faithfulness

To be faithful means that a person only has sex with one non-HIV- infected partner during his/her life. Monogamous sexual activity is the most decisive measure to prevent sexual transmission of HIV. Promiscuity and polygamy should be avoided**.**

2.15.3 Condoms

In cases where there are multiple partners, regular condom usage should be encouraged to protect both partners and the chance of HIV infection. Effective use of condom may reduce the risk of transmitting HIV infection by up to 70-100%. It may also aid the prevention of gonorrhoea, syphilis, chlamydia, genital ulcer and herpes simplex virus infection at arguably the same rate (Ollry and Rotimi (2003). Although using condoms does not eliminate the risk of contracting HIV entirely, it is still an effective, safer alternative to unprotected sex. The risk of HIV transmission during unprotected sex is ten thousand times greater than the risk during sex with proper use of condom.

Condoms use among Nigerians is not generally accepted because of attributed cultural barriers and societal expectations particularly among youth despite the fact

that it is the most widely used and most available contraceptive choice (Sunmola, 2001). Pastoralists seldom use any artificial birth control method. The Turkana pastoralists have negative disposition towards the use of condom, they liken condom use to eating a candy while the wrapper is still on. Others feel their penises are too long for condoms; they are yet to believe that they fit any size (IRIN, 2011). Ollry and Rotimi (2003) found out that a quarter of the University of Ibadan students sampled in a research failed to use condom when they had the last sex, these are the educated people who are supposed to be more enlightened about the use of condoms. Among other barriers to the effective use of condom during sex, pointed out by Ollry and Rotimi (2003) are:

- Many feel embarrassed whenever they are going to buy condom
- Many feel embarrassed talking about condom
- The fact that condoms do often break or slip
- Many feel that sex does not feel as good when a condom is used
- Many feel that stopping sex to put on a condom takes the fun out of it.

Glen, Amanda and Tom (1998) likened HIV, epidemic to a flood threatening to engulf millions of people; however, the only available escaping boats are 'abstinence', mutual fidelity (faithfulness) between uninfected partners and correct and consistent condom use. If a person does not feel at home on a certain boat, they should not jump back into the water but switch to another boat. The crucial matter

stressed was the need for individuals to move from one boat to another, depending on their age, but also on the particular circumstances of their lives.

2.15.4 Microbicides

WHO (2012) defined microbicides as compounds that can be applied inside the vagina or rectum to protect against sexually transmitted infections (STIs) including HIV. They can be formulated as gels, creams, films or suppositories. Microbicides may or may not have spermicidal activity (contraceptive effect).

It is important to support the development of microbicides because:

- Despite the knowledge of successful HIV prevention strategies - condom use, reduction in the number of sexual partners, diagnosis and treatment of sexually transmitted infections – HIV continues to spread at alarming rate especially among women in developing countries;
- Without a preventive HIV vaccine, microbicides offer an alternative to condoms as the most feasible method for primary prevention of HIV.
- Currently available HIV prevention techniques are often not feasible for many women who live in resource poor settings. The availability of microbicides would greatly empower to protect themselves and their partners. Unlike male or female condoms, micribicides are a potential preventive option that women can easily control and do not require the cooperation, consent or even knowledge of the partner. There are different ways in which microbicides act to prevent infection with genital pathogens. Some microbicides (e.g carraguard, cyanoviran, cellulose selphate, PRO

2000) provide a physical barrier that keeps HIV and other pathogens from reaching the target cells. Another class of microbicides (e.g sacidform, buffergel and lactobacillus crispatus) act by enhancing the natural vaginal defence mechanisms by maintaining an acidic pH, which protects the vagina. C31G and octoxynol-9 kill or disable pathogens by stripping them of their outer covering. Another class of products e.g tenafovir (OMPA) acts by preventing replication of the virus after it has entered the cell. There are 23 microbicides products in various stages of clinical development. Carraguard, a product of the Population Council, is in Phase III effectiveness trial in South Africa and Botswana. Phase II/III studies of BufferGel and PRO 2000 are ongoing in Indian, Malawi, South Africa, United Republic of Tanzania and Zimbabwe. Expanded Phase II studies are in progress for Carraguard, dextrin sulphate, lactobacillus cripatus and PRO 2000. Products that are in Phase I include Acidform, C31G, cellulose sulphate and tenaotovir.

2.15.5 HIV/AIDS prevention promotion

UNESCO (2003) defined HIV/AIDS prevention promotion as basically health education intervention programmes that make use of advertisement campaigns on: Television through drama series, jingles on radio, drama on radio, stage drama, posters, handbills, pamphlets, music, seminars, conferences, symposia and lectures organized from time to time mostly by governmental and non-governmental organizations for the purposes of creation of awareness and educating the general public about how HIV is transmitted and how to avoid contracting the AIDS disease.

Available HIV prevention approaches include strategies to:

- Change sexual and drug –using behaviours;
- Promote correct and consistent use of male and female condoms;
- Improve the management of sexually transmitted infections.
- Broaden access to HIV testing and counselling;
- Increase access to harm-reduction;
- Programmes for drug users;
- Promote medical male circumcision; and
- Ensure effective control in health care settings (UNAIDS, 2005)

Oladele (2003) listed out the out the organizations and bodies that create awareness of HIV/AIDS in rural areas of 0yo State, they are:

- Life planning Education (LPE)
- Communities Women and Development
- Youth Counselling Clinics
- Local Action Committee on AIDS (LACA)
- Massive Awareness Raising Campaigns on HIV/AIDS (MARCA)
- Society for Family Health
- Association for Reproductive and Family Health (ARFH)

However, Adelore, et.al. (2006) identified radio, television, handbills and peer groups as effective channels of communications used for HIV/AIDS preventing programme among rural dwellers in rural areas of southwestern Nigeria.

CHAPTER THREE

THEORETICAL AND CONCEPTUAL FRAMEWORK

3.1 Introduction

This chapter considers the theoretical and conceptual framework upon which this study is premised. Theories considered relevant to the study were isolated and discussed while the conceptual framework attempts to define the orientation underlying the study. The conceptual framework establishes the relationships that exist between dependent variables and independents variables.

3.2 Theoretical framework

A theoretical framework is a structure that guides research relying on a formal theory, constructed by using an established, coherent explanation of certain phenomena and relationships. This study drew from various theories, which include the following.

- Knowledge gap theory

- Diffusion of innovation theory
- The social interactions model

3.2.1 Knowledge gap theory

3.2.1.1 History and orientation

The knowledge gap theory was first proposed by Tichenor, Donohue and Olien at the University of Minnesota in the 70s. They believe that the increase of information in society is not evenly acquired by every member of the society: people with higher socio-economic status tend to have better ability to acquire information (Weng, 2000). This led to a division of two groups: a group of better-educated people who know more about most things, and those with low education who know less. Lower socio-economic status (SES) people, defined partly by educational level, have little or no knowledge about public affairs issues, are disconnected from news, events and important new discoveries, and usually are not concerned about their lack of knowledge.

3.2.1.2 Core assumptions and statements

The knowledge gap can result in an increased gap between people of lower and higher socio-economic status. The attempt to improve people's life with information via the mass media might not always work the way this is planned. Mass media might have the effect of increasing the difference gap between members of social classes.

Tichenor, Donohue and Olien (1970) presented five reasons for justifying the knowledge gap.

1) People of higher socio-economic status have better communication skills, education, reading, comprehending and remembering information.

2) People of higher socio-economic status can store information more easily or remember the topic form background knowledge

3) People of higher socio-economic status might have a more relevant social context.

4) People of higher socio-economic status are better in selective exposure, acceptance and retention.

5) The nature of the mass media itself is that it is geared toward persons of higher socio-economic status.

Knowledge gap indicated that inequality exists among a given population with regards to information accessibility. It explained how socio-economic and demographic characteristics of various segment of a population affect communication process. Several variables associated with these differences are: literacy level, income, ethnicity, religion, and level of production.

The knowledge gap theory suggested that inequality exist among the semi-settled pastoralists with regards to accessibility to information on HIV/AIDS prevention techniques, which will consequently affect their level of knowledge and utilization of HIV/AIDS prevention techniques

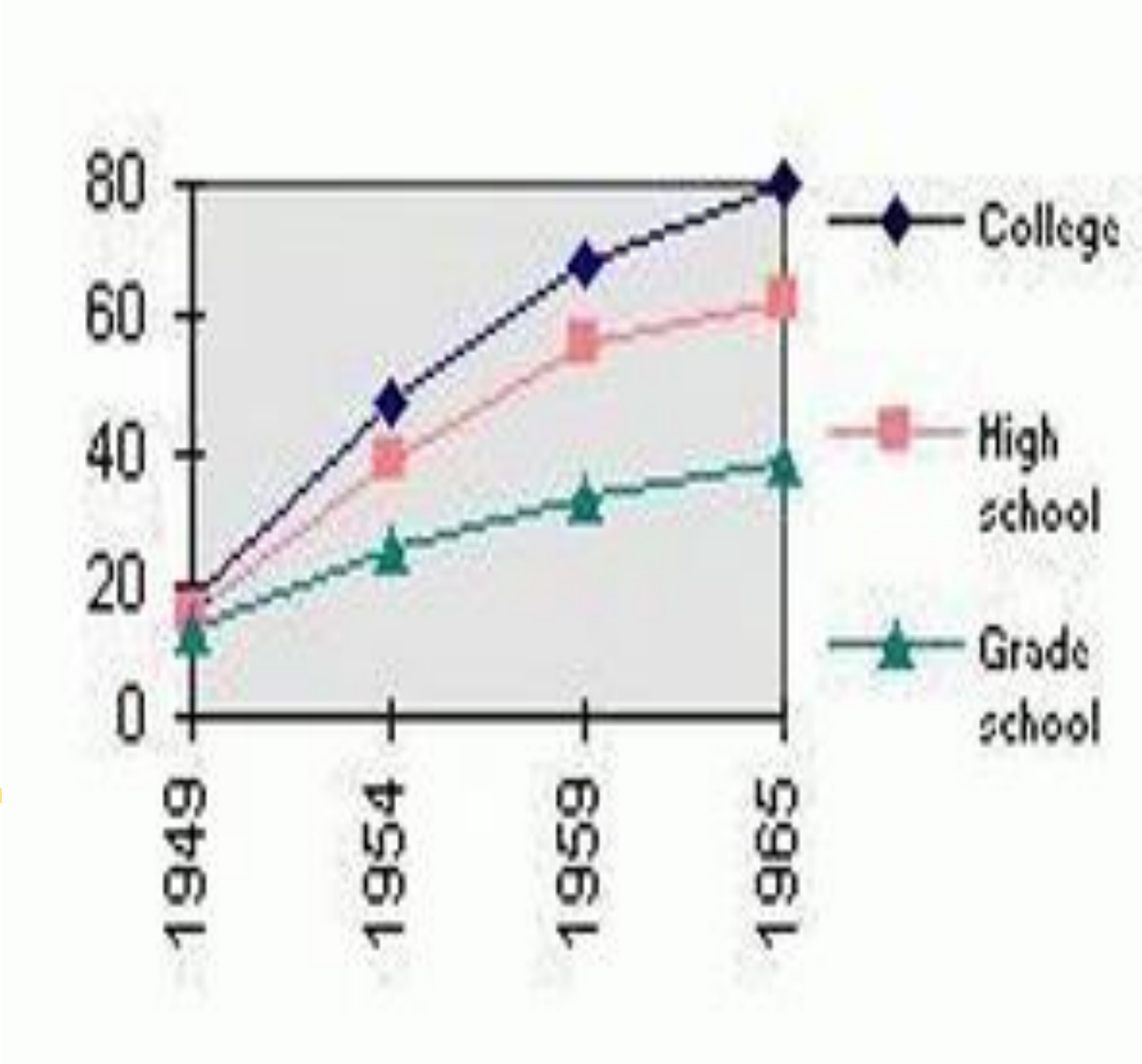
80
60
40
20
0
1949
1954
1959
1965
College
High school
Grade school

Fig. 3.1: Knowledge gap conceptual model

Source: Tichenor, Donohue and Olien, 1970

Figure 3.1 shows that educational level or socioeconomic status make a difference in knowledge. The question was whether or not respondents felt astronauts would ever reach the moon. Those with high levels of education (based on three levels: grade school, high school and college) were more likely to agree that man would reach the moon than those with lower levels of education both at a certain point in time and over all four intervals. Most important was that the gap between levels widened over time in that the percentage of respondents in the high education level who agreed rose more than 60 percentage points over 16 years while those in the low level of education category rose less than 25 percentage points. Those who are better educated took more advantage of new sources of information than those who are less educated. For instance, if newspaper should emphasize and carry more articles on the control of black pod disease in southwestern Nigeria, the better educated will learn more even though it is the less educated who are in greater need of the information. This situation has continued to result in 'knowledge gap' among the audiences of mass media. Surveys of mass media and tests of knowledge are favorites methods used.

3.2.1.3 Scope and application

Media presenting information should realize that people of higher socio-economic status get their information in different way than the lower socio-economic people. Furthermore, this theoryof the knowledge gap might help in understanding the increased gap between people of higher socioeconomic status and people of lower socioeconomic status. It can be used in various circumstances.

Example of the use of the knowledge gap was in a research for presidential campaigns. The knowledge gap theory holds that when new information enters a social system via a mass media campaign, it is likely to exacerbate underlying inequalities in previously held information. Specifically, while people from all strata may learn new information as a result of a mass media campaign, those with higher levels of education are likely to learn more than those with low levels of education, and the information gap between the two groups will expand (Holbrook, 2002).

3.2.2 Diffusion of innovations theory

Diffusion of Innovations (DOI) Theory provides useful insight into the difficulty of achieving the behaviour change necessary to curb the HIV/AIDS epidemic in developing countries

The Diffusion of Innovations is characterized by four elements: an innovation, communicated via certain channels, over a period of time, to members of a social system (Rogers, 1995). The innovation refers to an idea, practice, or object that is perceived as new to an individual. The DOI literature is replete with examples of successful innovations: hybrid corn, new prescription drugs, and family planning.

However, the changes in behaviour needed to halt the HIV/AIDS epidemic constitute what Rogers has labelled a ‘‘preventive innovation,’’ defined as ‘‘an idea that an individual adopts at one point in time in order to lower the probability that some future unwanted event may occur’’ (Rogers, 2003). In countries where HIV transmission occurs primarily through sexual relations, the specific behaviours include abstinence, being faithful (to an uninfected partner), or condom use—known as the ‘‘ABCs.’’ In countries with a high level of injection drug use, the behaviour change intervention includes both needle exchange for injection drug users and adherence to the ABCs. For the sake of brevity, ABCs is the focus.

Although the theory of DOI is very comprehensive, Rao and Svenkerud (1998) identified the six DOI concepts that are most relevant to HIV/AIDS prevention:

- Communication channels are the means by which a message is transmitted from one person to another.
- The innovation-decision process is an over-time sequence through which a target audience member passes. This sequence has five stages:

a. awareness,

b. knowledge,

c. persuasion,

d. adoption, and

e. implementation.

- Homophily is the extent to which two or more people who communicate perceive that they are similar to one another.

- An attribute is a characteristic of the innovation that may be perceived either positively or negatively; these include:

a. relative advantage

b. comparability

c. complexity

d. trialability

e. observability

- Adopter categories or classifications of individual groups on basis of relative time at which they adopted a new idea, technique, or process.
- Opinion leaders are people who are respected for their knowledge and reputation on some particular topic.

These concepts provide a useful framework for analysing the effectiveness of programs in the handful of countries that have been successful, as well as the failure of prevention efforts to halt the epidemic in the majority of afflicted countries.

3.2.2.1 Use of DOI as a framework for HIV/AIDS prevention

There is no single theory that informs or guides the development of HIV/AIDS prevention programs. Indeed, many different theories have emerged, both to design programs and to evaluate their effectiveness (King, 1999). King (1999) classified these different theories in one of three categories:

1. focus on individual change,

2. social theories and models, and

3. structural and environmental.

DOI corresponds to the second category, given that it explains how a new practice can diffuse through a given social system to the point it becomes a social norm. As Rogers (1995) explained, when ‘‘trend setters’’ in a social group begin to model a new behavior to others, they alter the perception of what is normative. Subsequently, others will begin to adopt the new behaviour. Ultimately, community members, regardless of whether they have had contact with the original trendsetters, are expected to adopt the new behavior as it diffuses throughout the community’s social networks. Members of the social system in question pass through the stages of the innovation-decision process (awareness, knowledge, persuasion, adoption, and implementation) at different rates, leading to the well-known categories of acceptors: from innovators to laggards.

The early experience with HIV/AIDS in the United States lends credence to this theory. DOI was central to one of the most effective HIV/AIDS prevention programs to date: ‘Stop AIDS’ in San Francisco. The intervention program drew on Kurt Lewin’s small, Group Communication Theory and the Diffusion of Innovation Theory (Singhal and Rogers, 2003). In the early 1980s, gay men in San Francisco took action to combat this HIV/AIDS deadly disease that had hit their community with brutal force. ‘Stop AIDS’began by conducting focus groups to learn how much gay men already knew about HIV/AIDS (Wohlfeiler, 1998) as a basis for designing effective interventions. However, the founders soon realized that the focus group discussions were having a strong educational effect, as men shared information about

HIV prevention. 'Stop AIDS'then employed a group of outreach workers from the gay community to conduct small group meeting in homes and apartments throughout the gay neighbourhoods, which launched the diffusion process. From 1985 to 1987, 'Stop AIDS'reached 30,000 men through its various outreach activities (Singhal and Rogers, 2003).

According to DOI theory, only those early adopters, who make up a relatively small segment of the population, need to initiate a new behavior for it to spread throughout the population (Wohlfeiler, 1998). In the case of 'Stop AIDS', a well-respected individual who was seropositive led the session attended by other gay and bi-sexual men. He would explain how the virus spreads and encourage participants to either use condoms or seek monogamous relationships. At the end of each session, participants were asked to make a pledge to safer sex, and to volunteer to organize and lead future small group meetings with gay men. Concurrently with the small group meetings, media campaigns helped to increase awareness and knowledge of HIV/AIDS among the gay community. The rate of new infections dropped precipitously by the mid-1980s. Curiously, attendance at the STOP AIDS meetings fell off, and 'Stop AIDS' found it difficult to recruit new volunteers. The program had reached the critical mass of early adopters of safer sex. In 1987, 'Stop AIDS' declared victory and discontinued its local operation, only to reopen in 1990 for new cohorts of younger gay men migrating to the city (Singhal and Rogers, 2003).

Unquestionably, the San Francisco experience demonstrated the power of diffusion and the importance of DOI concepts such as homophily and opinion

leaders. ‘Stop AIDS’had effectively recruited staffs that were part of the community to serve as outreach workers. The opinion leaders within the gay community championed the cause, despite the fear of negative publicity it could bring to the gay community.

One cannot attribute the success of the San Francisco program exclusively to DOI. Indeed, it relied heavily on the epidemiological concept of targeting a group at high risk of spreading the disease, and it utilized other strategies such as Lewin’s theories of the social psychology of individual behaviour change. However, the experience of San Francisco was sufficiently compelling to lead Kelly and colleagues to study other interventions among gay men in different U.S. communities.

Kelly and his colleagues adapted the San Francisco model to reach gay men in small U.S. cities through bars that served as a major congregating point for this group in these cities. The model called for identifying the natural opinion leaders in the community and enlisting them to endorse behaviour change. The intervention consisted of four steps:

1. Bar staff were trained to identify natural ‘‘opinion leaders’’ among bar patrons;
2. Patrons who had been independently nominated by several bar staff were recruited into the project as opinion leaders;
3. Opinion leaders were trained in basic communication skills; and
4. Contracts were made with opinion leaders to have a specified number of conversations with peers following the training sessions.

Researchers surveyed bar patrons in both intervention and comparison cities, before and after the intervention. These bar-based opinion leader interventions produced community-level adoption of condom use in two-city and three-city comparison group studies (Kelly, St. Lawrence, Diaz, et al., 1991; Kelly, St. Lawrence, Stevenson, et al., 1992) and in a multi-city randomized field trial (Kelly, Winett et al., 1993). Kelly et al.'s work (1991, 1992, 1993) underscores that the nature of urban gay male bar networks provides a particularly powerful place in which diffusion might occur. It also acknowledges the important role that perceived peer norms play in influencing individuals' behaviour (Miller, Klotz, and Eckholdt, 1998).

Inspired by the Kelly et al. research and by Diffusion of Innovation Theory, Miller et al. (1998) attempted to replicate and adapt the bar-based intervention with male prostitutes and other patrons in New York City ''hustler'' bars. Moreover, these researchers were more systematic in establishing and testing the underlying theoretical model for the intervention. As with the Kelly et al. (1991, 1992, 1993) studies, they sought to alter peer norms to encourage safer sexual behaviour by having opinion leaders endorse these behaviours with their peers. Analysis of data on a sample of 1741 male prostitutes and bar patrons indicated significant reductions in paid, unprotected sexual intercourse and oral sex following the intervention. The changes were generally small, though statistically significant. However, the study failed to demonstrate that peer norms mediated the relationship between intervention and behavior.

DOI was also used in the design and evaluation of a study among gay men in London. Elford, Sherr, Bolding, Serle, and Maguire, 2002) noted that the most rigorous studies to date on HIV/AIDS prevention among gay men were all U.S.-based, and they set out to replicate the work for gays in London. However, instead of bars, Elford et al. (2002) tested the design in gyms that gay men frequented. They were not able to replicate the significant change in behaviour found in the earlier studies among gay men, possibly because the peer educators found it difficult to approach clients and discuss HIV/AIDS in the atmosphere of the gym.

If HIV/AIDS prevention proved so effective in San Francisco in the early 1980s, why then has the epidemic continued to spread so virulently in many countries around the to world, infecting over a third of the population in the most extreme cases? Unquestionably, numerous factors favoured the intervention in San Francisco: the gay men were highly educated, had a very cohesive sense of community, and had pre-established media channels that targeted the gay community. Moreover, they could focus high levels of energy on this one problem, in contrast to persons in developing countries who must simultaneously struggle with hunger, unemployment, inadequate housing, and other consequences of poverty. DOI provides useful insights into the failure of prevention efforts in many developing countries worldwide, as outlined below.

DOI theory provides a compelling rationale for the failure of prevention efforts throughout much of the developing world. According to DOI, the pace of diffusion relates directly to the five attributes (characteristics) of the innovation, described

earlier. If these five attributes are considered in relation to the ABCs, it becomes clear why this ‘‘preventive innovation’’ has been slow to diffuse in the large majority of developing countries.

3.2.3 The social interactions model

This model according to Van and Hawkins (1996) stresses the diffusion of innovation. The first stage that occurs in change sequence is when the potential receiver becomes aware of the innovation and is followed by behaviour change. This behavioural change results in interest and information seeking; and evaluation which are considered important at different stages of adopting process. It is postulated that once a few members of a group have adopted an innovation, in effect it spreads to other members through a process of social interaction.

This model, according to Van and Hawkins (1996), assumes that the innovations have been developed which are profitable for a large number of people. It is also, postulated that research among farmers played a very important role in the development of this model. This model may be regarded as the adoption process as described by Van and Hawkins (1996) stages of adopting. The development of the innovation does not however spell out the interactive process between research, extension and farmers’ process but stresses that the innovation developed is profitable to a number of farmers based on a presumed premise. This model fits very closely with the model being developed for this study.

3.2.4 The problem-solving model

The model involves the farmer as the initiator of the process of change by identifying an area of concern or sensing a need for change. The model starts with the individual who has a problem instead of the research or innovation Van and Hawkins, (1996). The change process is targeted at solving the problems of a particular farmer of which the farmer is involved throughout the course of finding a suitable solution. The farmer may however be able to solve an identify problem by self but could also seek for outside assistance which could be individual or groups which are referred to as 'change agents'.

Information is needed by a farmer in order to solve a problem. Some of the information needed to be solved, a problem may come from the existing stock or research findings or farm new research carried out or from other colleagues (Van, 1996). This model is, however, said not to be helpful in analysing how a large number of farmers with similar problems can be reached. Because, it is a model that is not helpful in dissemination and adoption of new farm innovation in a community but individual based, it will however partially be adequate to fit into the model for the present study.

3.3 Conceptual framework

The conceptual framework represented in Fig 3.2 attempts to define the orientation underlying this study. The principal concept upon which this study is based is the knowledge and utilisation of HIV/AIDS techniques among semi-settled

pastoralists. The study is built on the assertion that utilisation of HIV/AIDS techniques is influenced by personal characteristics (age, religion, sex, educational status, social organisation membership and level of language understanding), socio-economics status, sources of information on HIV/AIDS prevention techniques, knowledge of HIV/AIDS prevention techniques, constraints to the utilisation of HIV/AIDS prevention techniques and attitude towards utilisation of HIV/AIDS prevention techniques. The conceptual framework is based on knowledge and utilisation of HIV/AIDS prevention techniques among semi-settled pastoralists. It is made up of independent, intervening and dependent variables.

The selected personal characteristics of semi-settled pastoralists such as age, religion, sex, educational status, social organisation membership and level of language understanding are expected to influence the semi-settled pastoralists' socio-economic status, sources of information on HIV/AIDS prevention techniques, constraints to utilisation of HIV/AIDS prevention techniques and knowledge of HIV/AIDS prevention techniques. All these will affect attitude towards utilisation of HIV/AIDS prevention techniques and consequently the utilisation of HIV/AIDS prevention techniques among semi-settled pastoralists.

However, the intervening variables (government policy, government activities and non-governmental organisation activities) are likely to have impact on the dependent variable, though not be measured, because they are outside the researcher's control. All the elements of intervening variables are presumed to have directly or indirectly

influenced the independent variables, which is the index of level of utilisation of HIV/AIDS prevention techniques

CONCEPTUAL FRAMEWORK

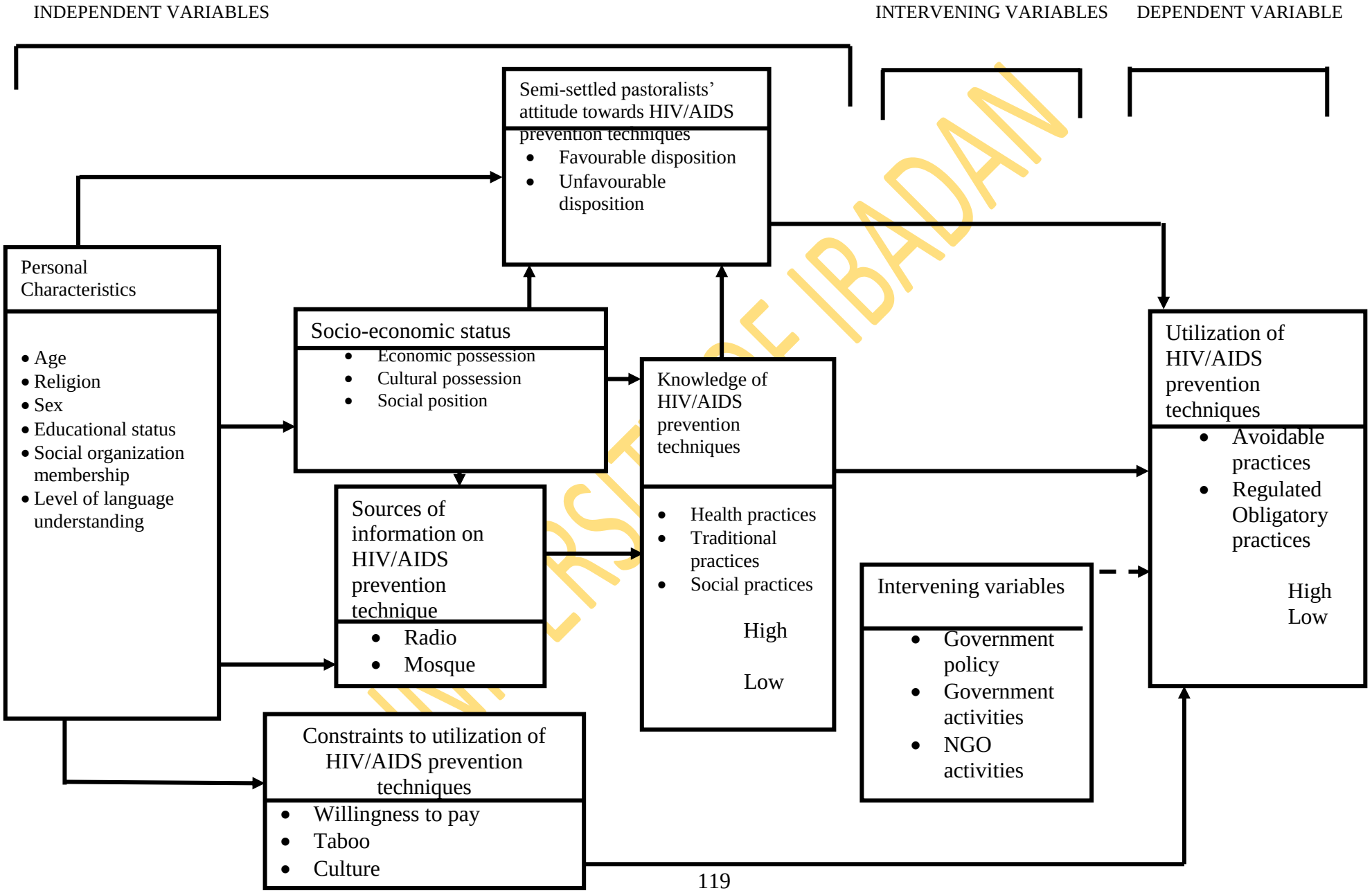

Fig. 3.2: Conceptual framework on knowledge and utilisation of HIV/AIDS prevention techniques among the semi-settled pastoralists

CHAPTER FOUR

RESEARCH METHODOLOGY

4.1 Introduction

This chapter presents the methodology of the study. The chapter presents the study area, population of the study, sampling procedure and sample size, sources of data, and instrument for data collection which was through the administration of questionnaire to researchers. The chapter also presents how the variables of the study were measured and operationalised and how the data collected was analysed.

4.2 Study area

The study was conducted in southwestern Nigeria which lies between Latitude 7° 01' and 8° 14' and Longitude 2° 45' and 4° 15'. This area has rainforest, swampy and it is also a savannah region. It has a large population density that supports market opportunities. This area produces foodstuffs, and cash crops for local consumption and export to other country. The cash and staple crops in the area include cocoa, kolanut, cassava, maize, palm tree among others, Livestock such as poultry, sheep, goat and cattle are reared in the area. There are six states in the southwestern Nigeria, they are; Lagos, Ogun, Oyo, Osun, Ondo and Ekiti with HIV prevalence rate of 5.1%, 3.1%, 3.0%, 2.7%, 2.3% and 1.4% respectively (NACA, 2012). These states share homogenous culture and tradition. The inhabitants of this region are direct descendants of Oduduwa-the progenitor of Yoruba race. It has heterogeneous population of Yoruba, Tiv, Agatu, Ibo, Hausa and Fulani (Oladele, 2004). The main

occupation of majority of the indigenes in the area are farming and trading. The abundance of savanna region in Ogun and Oyo states, favours the rearing of ruminant animals in the area than other states in southwestern Nigeria as shown in figure 4.2 and 4.3. Fulani are the most numerous and widespread pastoralists not only in the southwest but across Nigeria (Oladele, 2004). The population of this region is about sixty million (NPC, 2006).

4.2.1 Population of the study

The population of the study consists of all adult semi-settled pastoralists in southwestern Nigeria. These semi-settled pastoralists occasionally combine pastoralism with crop farming and selling of dairy products.

4.2.2 Sampling procedure and sample size

Multi-stage sampling technique was used to select respondents for the study. Ogun and Oyo states were purposively selected for the study due to high concentration of semi-settled pastoralists in their derived savannah regions than other states in southwestern Nigeria (*Ogunsumi, and Ogbosuka, 2009 and Francis, 2000*). Figure 4.2 presents the map of Ogun State showing her Local Government Areas (LGAs) while Figure 4.3 presents the map of Oyo State showing her LGAs. In Ogun State, the concentration of semi-settled pastoralists is highest in 5 LGAs (Odeda, Yewa North, Yewa South, Imeko-Afon and Abeokuta North) which fall within Derived Savannah Areas (DSA) (Oyesola, 2000), while in Oyo State, the concentration of semi-settled pastoralists is highest in 10 LGAs (Saki West, Saki

East, Atisbo, Kajola, Oorelope, Olorunsogo, Itesiwaju, Iwajowa, Irepo and Iseyin) which fall within DSA (Oladele, 2004).

Table 4.1 presents the sampling procedure and sample size. Fifty percent of the LGAs in the DSA were randomly selected. House listing conducted in the selected LGAs reveals 1,174 and 2,949 households in Ogun and Oyo states respectively. Using a systematic random sampling technique with 12 as interval 94 households for Ogun and 236 for Oyo state were randomly selected which represent eight percent of the semi-settled pastoralists' households (which is proportionate to size of the population) from the LGAs.

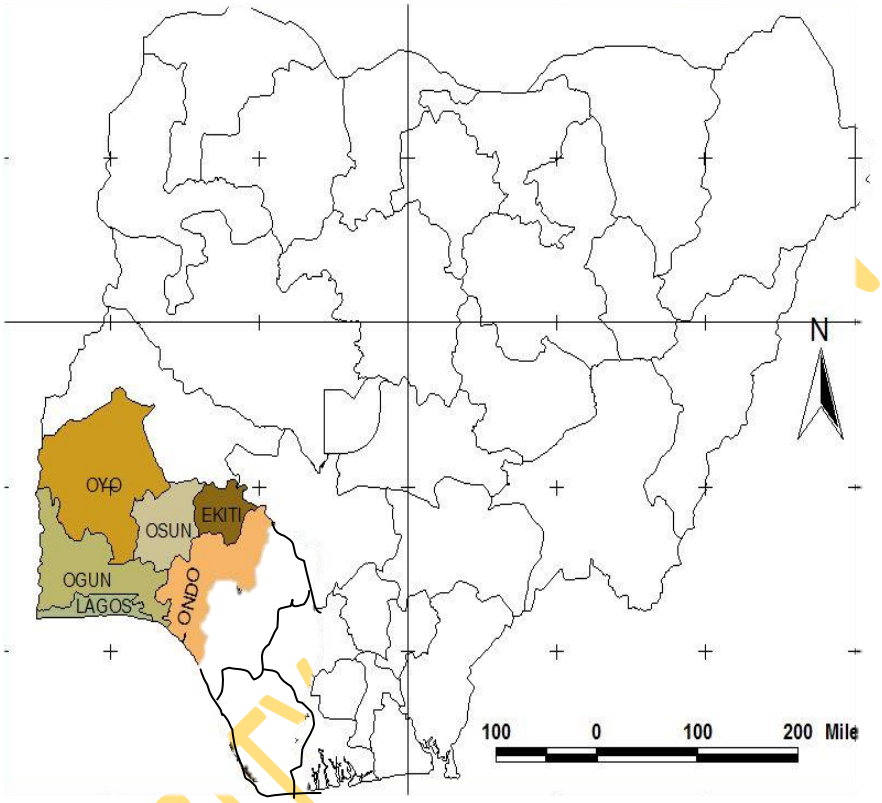

Fig 4.1: Map of Nigeria showing the states in the Southwestern geopolitical zones

☆☆ Study area

Fig. 4.2 Map of Ogun State showing the Local Governments Areas

☆☆ Study area

Fig. 4.3 Map of Oyo State showing the Local Governments Areas

Table 4.1 Sampling procedure and sample size

Southwestern States	Selected States	LGAs with Semi-settled pastoralists' high concentration (LSSPC)	50% of LSSPC	Number of Semi-settled pastoralists' households (SSPH)	8% OF SSPH
Ogun	Ogun	Yewa North	Yewa North	343	28
Lagos		Yewa South			
Osun		Imeko-Afon	Imeko-Afon	656	52
Ekiti		Odeda			
Ondo		Abeokuta North	Abeokuta North	175	14
Oyo	Oyo	Olorunsogo	Olorunsogo	419	34
		Oorelope			
		Shaki East	Shaki East	500	40
		Shaki West			
		Iwajowa	Iwajowa	1075	86
		Atisbo			
		Itesiwaju	Itesiwaju	430	34
		Kajola			
		Iseyin	Iseyin	525	42
		Irepo			
				4123	330

Total respondents =330

Source: Field survey, 2010

4.3 Source of data

The data used in this study were from primary source only.

4.3.1 Instrument for data collection

The interview schedule was used to collect data and the developed interview schedule was administered to semi-settled pastoralists. This consists of close-ended and open-ended questions relating to the objectives of the study. The instrument had 9 sections as follows:

Section A: Section A contains question items used to obtain information on personal characteristics of the semi-settled pastoralists.

Section B: This section contains items used to elicit information on (a) membership of social organization (b) position held in social organization

Section C: Section C contained 9 items used to obtain information on possession and non-possession of items used to calculate the socio-economic status of the semi-settled pastoralists.

Section D: This section contained items used to elicit information on different levels of language understanding (a) speak (b) read (c) speak and read

Section E: This section contained items used to elicit information on available sources of information on HIV/AIDS prevention techniques to semi-settled pastoralists.

Section F: This section contained 16 attitudinal statements used to elicit information on the attitude of semi-settled pastoralists towards utilization of HIV/AIDS prevention techniques.

Section G: Section G contained 25 knowledge test items used to elicit information on semi-settled pastoralists' knowledge of HIV/AIDS prevention techniques.

Section H: Section H was designed to elicit information on the constraints faced by the semi-settled pastoralists in the utilization of HIV/AIDS prevention techniques.

Section I: This section contained 11 test items to elicit information on semi-settled pastoralists utilization of HIV/AIDS prevention techniques.

4.3.2 Validation of instrument

In order to ensure the validity of the instrument for the data collection, it was subjected to face and content validity with the assistance of experts in the fields of agricultural extension and human health. Agreement between the experts was ensured through crosschecking of facts on the items in the questionnaire from both groups of experts. This procedure assisted in designing questions that covered all the objectives used for the study. It also assisted to capture the content of what was assessed in the study.

4.3.3 Pre-testing the instrument

The draft of the interview schedule was pre-tested in semi-settled pastoralists households at Kajola Local Government Area of Oyo state.. These households are

part of the population but were not selected for the study. The interview schedule was administered to 30 semi-settled pastoralists

4.3.4 Reliability

In order to ensure that the data obtained from the instrument are reliable and consistent, an analysis of internal consistency of the instrument was carried out. The interview schedule was analysed using the split-half method of reliability test. A reliability co-efficient of 0.76 was obtained which was considered good enough for the instrument reliability as stated by Kuder-Richardson (1963). Hence the instrument was further modified with the assistance of experts. Based on the responses of the semi-settled pastoralists in the pre tested interview schedule, some questions were modified to improve clarity and eliminate ambiguity in the instrument. The modified interview schedule was eventually administered in the sampled households used for the study.

4.4 Measurement of variables

4.4.1 Independent variables

The independent variables in this study included respondents' personal characteristics such as age, sex, marital status and educational status. It also included level of language understanding and membership of social organisation.

4.4.1.1 Age

The age of respondents was measured at interval level by asking them to indicate their actual age(s) in year.

4.4.1.2 Sex

The sex of the respondents was measured at nominal level by asking them to indicate whether they were male or female and this was done by choosing from the option provided.

(a) Male (1 was assigned)

(b) Female (2 was assigned)

4.4.1.3: Marital status

The marital status of respondents was measured at nominal level by asking them to indicate the most appropriate option that best described them.

(a) Single (1 was assigned)

(b) Married (2 was assigned)

(c) Divorced (3 was assigned)

(d) Widowed (4 was assigned)

4.1.4 Educational status

The level of education of respondents' was measured at nominal level. Respondents were asked to indicate the highest level of education they have attained. It was captured as follows:

(a) No formal (1 was assigned)

(b) Quranic school (2 was assigned)

(c) Primary (3 was assigned)

(d) Secondary (4 was assigned)

(e) NCE and above (5 was assigned)

4.4.1.5 Religion

The respondents were asked to indicate the type of religion they practice. It was measured at nominal level.

(a) Islam (1 was assigned)

(b) Christianity (2 was assigned)

(c) Traditional (3 was assigned)

(d) Others (specify) (4 was assigned)

4.4.1.6 Social organisation participation

The social organisation participation of the respondents was measured by asking them to indicate which social organisation they belong to and the post held. It was measured at nominal level.

Not a member (0 was assigned)

Ordinary member (1 was assigned)

Executive member (2 was assigned)

4.4.1.7 Socio-economic status

Respondents' socio-economic status were measured by asking the respondents to indicate the possession or non-possession of the listed items: (1) functioning motor cycle (2) functioning motor vehicle (3) radio (4) size of farm (acre) (5) chieftaincy title (6) leader of organisation (7) visit to Mecca (8) number of wives (9) number of cattle. Weights were assigned to the items from which the socio-economic scores was obtained. The scores emanated from a scale developed and standardized for measuring socio-economic status of respondents in the study area. It followed the procedure used by Akinbile (2007), Ladele (1990) and Patel and Anthonio (1974). Items used to develop the scale are material and cultural possession. The items were adapted from previous studies Akinbile (2007), Ladele (1990) and Patel and Anthonio (1974). Personal survey and observation in some semi-settled pastoralists camps within the study area also provided the bases for inclusion of some items. Out of fifteen items initially selected, only nine items were retained in the final scale after final analysis.

4.4.1.8 Level of language understanding

The level of language understanding of the respondents was measured at nominal level. The respondents were made to indicate the language(s) (English, Yoruba, Hausa or Fulfulde) they can speak and/or speak and read.

Cannot speak or read (0 was assigned)

Can speak (1 was assigned)

Can speak and read (2 was assigned)

4.4.1.9 Sources of information

The sources of information on HIVAIDS prevention techniques were determined by asking the respondents to tick from a list of options that was provided. This was measured at nominal level.

Radio (1 was assigned)

Mosque (2 was assigned)

Friends (3 was assigned)

Customers (4 was assigned)

Cattle market (5 was assigned)

Television (6 was assigned)

Bill board (7 was assigned)

Lecture (8 was assigned)

4.4.1.10 Knowledge of HIV/AIDS prevention techniques

Respondents were asked to respond to 25 test items testing their knowledge of HIV/AIDS prevention techniques using 2 scales of yes and no. Knowledge of

HIVAIDS prevention techniques was measured as a knowledge score at interval level. Yes and No were scored 1 and 0 respectively for positively constructed statements and vice versa for negatively constructed statements.

The expected minimum and maximum scores were 0 and 25.0 respectively. In the study, the observed minimum and maximum scores were 7.0 and 19.0 respectively. Knowledge of HIVAIDS prevention techniques was measured as a knowledge score at interval level. This was later categorised into two (high and low) levels on the basis of above and below the mean classification criterion. It followed the procedure used by Nalan (2012) and Owoaje and Adebayo (2011). The proportions of correct and wrong responses were reported as percentages.

4.4.1.11 Attitude towards utilisation of HIV/AIDS prevention techniques

The attitude towards utilisation of HIV/AIDS prevention techniques was ascertained by asking respondents to indicate their disposition to each of the 16 (positively and negatively constructed) attitudinal statements. A 5-point Likert type scale of "Strongly agree"-5 points, "Agree"-4 points; "Undecided"-3 points; "Disagree"-2 points and "Strongly disagree" -1 point for positively constructed statements and "Strongly agree" -1 point, "Agree"-2 points; "Undecided"-3 points; "Disagree"-4 points and "Strongly disagree" - 5 points for negatively constructed statements.

The 16-statement on semi-settled pastoralists' attitude towards utilisation of HIV/AIDS prevention techniques were operationalised by assigning values to the responses as follows;

Response options	**Positive statements**	**Negative statements**
Strongly agree	5	1
Agree	4	2
Undecided	3	3
Disagree	2	4
Strongly disagree	1	5

The responses were summarised by constructing an attitudinal index of the respondents by adding the assigned (ordinal) scores to each of the responses in the statements. Hence, for the 16-statement attitudinal scale, a respondent can have a minimum of 16 points and a maximum of 80 points. In the study, the observed minimum and maximum scores were 30 and 80 respectively.

Attitudinal score of attitude on each of the HIV/AIDS prevention techniques was created in order to show the disposition of semi-settled pastoralists towards utilisation of each of them. This was done by adding the (ordinal) scores assigned to the response options to the related questions for each of the respondents. A total attitudinal score was created by adding the scores of each of the statements. The total index was then categorised into two (favourable and unfavourable) based on the score above and below the index mean of 55.6. Respondents who scored between

30.0 and 55.6 were categorised as having unfavourable disposition, while those who had between 55.7 and 80.0 were categorised as having favourable disposition towards the utilization of HIV/AIDS prevention techniques.

. **4.4.1.12 Constraints to utilisation of HIV/AIDS prevention techniques**

Respondents were asked to indicate from the list of 6 constraints presented, the constraints that hinder the utilisation of HIV/AIDS prevention techniques and the extent of effect of each of such constraints. Constraints were measured as severe, mild and not applicable which were scored 2, 1 and 0 respectively. Weighted score was obtained which was used to rank the constraints.

4.5 Analysis of objectives and hypotheses of the study

An analysis of the objectives and hypotheses of the study was carried out as shown in Table 4.2. These include the data requirement, analytical tools, the objective and the respondents involved.

Table 4.2: Analysis of the objectives and hypotheses of the study

Objectives/Hypotheses	Meaning	Data requirement	A priori-expected signs	Analytical tool
1. Identify the personal characteristics of pastoralists	To examine the personal characteristics of semi-settled pastoralists	• Age • Sex • Marital status • Religion • Educational status • Level of language of understanding • Membership of social organization	+	Descriptive statistics
2.Determine the socio- economic status of the semi-settled pastoralists	To determine whether the semi-settled pastoralists' socio-economic status have impact on knowledge and utilisation of HIV/AIDS prevention techniques	• Socio-economic scale	+	Descriptive statistics
3.Identify the sources of information on HIV/AIDS prevention techniques	To identify the sources of information on HIV/AIDS prevention techniques	• List of sources of information on HIV/AIDS prevention techniques	+	Descriptive statistics
4. Determine the attitude of semi-settled pastoralists towards utilisation of HIV/AIDS prevention techniques.	To ascertain the attitude of semi-settled pastoralists towards utilisation of HIV/AIDS prevention techniques	• Attitudinal statements on semi-settled pastoralists attitude towards utilization of HIV/AIDS prevention techniques	+	Descriptive statistics
5.Ascertain the knowledge level of semi-settled pastoralists on HIV/AIDS prevention techniques	To determine knowledge level of semi-settled pastoralists on HIV/AIDS prevention techniques	• List of positive and negative constructed statements on HIV/AIDS prevention techniques	+	Descriptive statistics
6. Determine semi-settled pastoralists' level of utilisation of HIV/AIDS prevention techniques	To ascertain the level of utilisation HIV/AIDS prevention techniques among pastoralists	• List of HIV/AIDS prevention techniques that are adoptable	+	Descriptive statistics
7. Identify constraints to the utilisation of HIV/AIDS prevention techniques	To ascertain the problems semi-settled pastoralists faced in the course of utilisation of HIV/AIDS prevention techniques	• List of probable constraints to the utilisation of HIV/AIDS prevention techniques	+	Descriptive statistics
8. Determine the differences in the utilisation of HIV/AIDS prevention techniques by semi-settled pastoralists in Oyo and Ogun states.	To ascertain whether there is differences in the utilisation of HIV/AIDS prevention techniques by semi-settled pastoralists in Oyo and Ogun states.	• List of HIV/AIDS prevention techniques that are adoptable	+	Descriptive statistics

Objectives/Hypotheses	Meaning	Data requirement	A priori-expected signs	Analytical tool
Hypothesis 1. Test of relationship between selected personal characteristics of respondents and utilisation of HIV/AIDS prevention techniques	To determine the personal characteristics that influenced their utilisation of HIV/AIDS prevention techniques	• Personal characteristics	+	Chi-square
Hypothesis 2. Test of relationship between socio-economic status of respondents and utilisation of HIV/AIDS prevention techniques	To determine the impact of the socio-economic status of the respondents on their utilisation of HIV/AIDS prevention techniques	• Socio-economic scale	+	PPMC
Hypothesis 3. Test of relationship between sources of information and utilisation of HIV/AIDS prevention techniques	To determine the sources of information that influenced their utilisation of HIV/AIDS prevention techniques	• Index of sources of information	+	Chi-square
Hypothesis 4. Test of relationship between knowledge and utilisation of HIV/AIDS prevention techniques	To determine the extent to which the knowledge of HIV/AIDS prevention techniques influenced its utilisation	• Index of knowledge • Index of utilization of HIV/AIDS prevention techniques	+	PPMC
Hypothesis 5. Test of relationship between semi-settled pastoralists' attitude and utilisation of HIV/AIDS prevention techniques	To examine the extent to which semi-settled pastoralists' attitude influenced utilisation of HIV/AIDS prevention techniques	• Index of attitude towards utilisation of HIV/AIDS prevention techniques • Index of utilisation of HIV/AIDS prevention techniques	+	PPMC
Hypothesis 6. Test of difference in the extent of utilisation of HIV/AIDS prevention techniques by semi-settled pastoralists in Ogun and Oyo states	To assess the difference between the extent of use of HIV/AIDS prevention techniques by semi-settled pastoralists in Ogun and Oyo states	• Index of utilization of HIV/AIDS prevention techniques	+	Independent sample t-test

4.6. Dependent Variables

4.6.1 Utilisation of HIV/AIDS prevention techniques

The dependent variable for this study is utilisation of HIV/AIDS prevention techniques Utilisation of HIVAIDS prevention techniques was measured as utilisation score at interval level. Respondents were asked to respond to test items testing their utilisation of HIV/AIDS prevention techniques using 2 scales of Yes and No. Yes and No were scored 1 and 0 respectively for the positively constructed statements and 0 and 1 respectively for the negatively constructed statements.. There were 11 utilisation tests items, the expected minimum and maximum scores were 0 and 11.0 respectively. In the study, the observed minimum and maximum scores were 2.0 and 11.0 respectively. Respondents were asked to indicate which of the HIV/AIDS prevention techniques they make use of. The score was later categorised into two (high and low) levels on the basis of above and below the mean classification criterion. Respondents who scored between 2 and 7.6 were categorised as having low utilisation, while those who had between 7.7 and 11.0 were categorised as having high utilization of HIV/AIDS prevention techniques. The proportions of correct and wrong responses were reported as percentages.

4.7 Data analysis

Descriptive statistics used include frequency, percentage distribution and mean while the inferential statistics were Chi-square, PPMC and t-test.

Multiple regression analysis was used to ascertain the contribution of each of the independent variables to the utilisation of the HIV/AIDS prevention techniques.

CHAPTER FIVE

RESULTS AND DISCUSSION

This chapter presents the results, interpretation and discussion of the quantitative data that were collected.

5.1 Personal characteristics of the semi- settled pastoralists

5.1.1 Age

Age distribution of respondents as indicated in Table 5.1 shows that the mean age of respondents in Ogun State, Oyo State and across the states were 36.3, 38.7 and 38.0 respectively. Across the states, about 83.0% of the semi-settled pastoralists were below 51years of age. This corroborates Oladeji (2008) and Oladele and Oladele (2011) findings that semi-settled pastoralists had a mean age of 38.9. This implies that majority of the semi-settled pastoralists are in their active reproductive age, wherein the possibility of heterosexual activities which can made them susceptible to HIV infection is high. The UNAIDS (2003) sentinel survey in Nigeria reported a 3.1% rate of HIV/AIDS infection among the age bracket of 15-49 years. HIV/AIDS prevention education should give attention to this age group.

5.1.2 Sex

Fifty percent of the semi-settled pastoralists were male and female respectively. This implies that male and female are significant in pastoralism. Ashimolowo and Otufale (2010) and Adekoya and Oladele (1998) pointed out that though herding is

the sole responsibility of the male and processing a nd sale of dairy products in towns is the main responsibility of the female, yet both male and female in pastoral society do undertake daily herding of animals especially during the dry season. Peter, Marion, Drashi, Wenzha and Marc (2006) affirmed that pregnant women were allowed only 3 days of rest after having a baby before they start herding in dry season. The migration involved in herding predisposes both male and female semi-settled pastoralists to HIV/AIDS infection.

5.1.3 Marital status

About 93.6% and 91.1% of the respondents were married in Ogun and Oyo States respectively, thus less than 10.0% of the respondents across the states were single. Sodiya, Adedire and Lawal-Adebowale (2009) indicated that male and female pastoralists respectively are married before the age of 30. Ismail (2012) pointed out that most semi-settled pastoralist men marry in their early twenties, while their women marry in their middle to late teens. By the age of twenty-five, most women are married while by the age of thirty; most men have had their first wedding. Dennis, (2007) found that those who get married at a younger age of about 25 years have less knowledge about HIV/AIDS than unmarried women and are more likely to believe they are at low-risk of becoming infected with HIV. However, HighBeam Research (2011) affirmed that a married woman among the pastoralists is expected to display appropriate modesty whenever the subject of marriage arises, for marriage

confers on her a special status. Thus, early marriage makes them to be less prone to HIV/AIDS infection.

5.1.4 Religion

One hundred percent of the respondents were Muslims. This confirms the assertion of Frank (2011) that over 90% of the pastoralists were Muslims and that it is, difficult to discover any pastoralists who admits not being Muslim, no matter how lax their practice may be. This implies that intervention programmes that are Islamic compliance will be easily adopted by the semi-settled pastoralists. However, Abu-Moghli, Nabosi, Khalaf and Suliman (2010) viewed that AIDS and its prevention should not be considered a major health problem among Muslim, if Islamic rites are practised.

5.1.5 Educational status.

About 1.0% and 21.1% of the respondents in Ogun and Oyo States have at least primary school education This corroborates the findings of Ashimolowo and Otufale (2010) that 82.6% of pastoralists are illiterate in Ogun State, while Adekoya and Oladele (1998) found that 100.0% of the women agro-pastoralists in Oyo State do not have formal education. About 2.7% of the semi-settled pastoralists across the states had at least secondary school education and above. FME (2000) observed that the literacy rate of semi-settled pastoralists in Nigeria is 0.28%. Oladeji and Oyesola (2000) observed that education plays an important role in communication, as it

affects coding and decoding of information. IRIN (2011) discovered that low literacy led to high HIV prevalence rate among pastoralists in Turkana in northern Kenya. NACA (2012) also noted that people with low level of formal education are worst affected by the AID epidemic in Nigeria.

Though Nomadic Education Commission was specifically established to take care of the education of the pastoralists in Nigeria, Ajidagba, Yusuf and Olumorin (2009) opined that the establishment of nomadic schools in Nigeria has failed to produce the desired results because of the non integration of mobile learning technologies while, Roy and David (2012) felt a lack of perceived benefits for sending children to school was the reason for unfavourable attitude of semi-settled pastoralists towards sending their children to school. Adult education for pastoralists should be inculcated into nomadic education programme to take care of the education of the adult pastoralists in Nigeria (Aderinoye, Ojokheta and Olojede, 2007).

5.1.6 Level of language understanding

Table 5.1 further reveals that 95.2%, 76.9% and 38.8% of the respondents across the states could speak Fulfulde, Yoruba and Hausa languages respectively. Fulfulde which is not one of the three major Nigerian languages (*Hausa, Yoruba and Igbo*) identified by UNESCO (2003) was the most popular language among the semi-settled pastoralists. However, less than 8.0% of the respondents across the states could speak and read Fulfulde, Yoruba, Hausa or English languages. CDC (2013)

identified language of presentation of information on HIV as one of the problems limiting the knowledge and utilisation of HIV/AIDS prevention techniques in United States. IRIN (2013) found out that pastoralists are the most disadvantaged group in Kenya wherein majority of the pastoralists are illiterate, cannot read newspapers and do not understand languages used by all the radio and TV stations which are the same facilities that are used to inform Kenyans on developmental issues. The implication of this finding is that dissemination of information on health related issues among audience of different cultural background, occupation and language should not be presented in official language only, but all languages spoken in a community must be put into consideration.

5.1.7 Membership of social organization

Table 5.1 shows that *Miyetti Allah* was the most popular organisation to which 37.3% of the respondents across the states affirmed their membership. The level of membership in social organisation was very low among the respondents. This may be due to the fact that there is no specific form of social organisation associated with pastoralism. The pastoralists are often organised in tribes, with the household (often including the extended family) as a basic unit for organisation of labour and expenses (HighBeam Research, 2011). Consequently, household should be the extension focus in health related issues.

Table 5.1 Personal characteristics of respondents

Variables description		Ogun n=94		Oyo n=236		Across the states n=330	
Variables	**Response options**	**F**	**%**	**F**	**%**	**F**	**%**
Age (Years)							
≤ 20		3	3.2	23	9.7	26	7.9
21-30		29	30.9	50	21.2	79	23.9
31-40		38	40.4	73	30.9	111	33.6
41-50		16	17.0	41	17.4	57	17.3
51-60		7	7.4	34	14.4	41	12.4
≥ 61		1	1.1	15	6.4	16	4.9
$\bar{x}$			36.3		38.7		38.0
Sex							
Male		47	50	118	50	165	50
Female		47	50	118	50	165	50
Marital status							
Single		6	6.4	21	8.9	27	8.2
Married		88	93.6	215	91.1	303	91.8
Religion							
Islam		94	100	236	100	330	100
Educational status							
Non formal		74	78.7	110	46.6	184	55.8
Quranic		19	20.2	93	39.4	112	33.9
Primary		1	1.1	23	9.7	24	7.3
Quranic and Primary		0	00	1	4.0	1	0.3
Secondary		0	00	8	3.4	8	2.4
NCE and above		0	00	1	4.0	1	0.3
Level of language understanding							
Hausa language	Speak	1	1.1	116	49.2	117	35.5
	Speak and Read	0	00	11	4.7	11	3.3
	Cannot speak	93	98.9	109	46.2	202	61.2
Fulfulde language	Speak	92	97.9	205	86.9	297	90
	Speak and Read	0	00	17	7.2	17	5.2
	Cannot speak	2	2.1	14	5.9	16	4.9
Yoruba language	Speak	93	98.9	147	62.3	240	72.7
	Speak and Read	0	00	14	5.9	14	4.2
	Cannot speak	1	1.1	75	31.8	76	23.0
English language	Speak	1	1.1	19	8.1	20	6.1
	Speak and Read	0	00	18	7.6	18	5.4
	Cannot speak	93	98.9	199	84.3	292	88.5
Membership of social organization							
Miyetti Allah	Not a member	70	74.5	137	58.1	207	62.7
	Ordinary member	20	21.3	85	36.0	105	31.8
	Executive member	4	4.3	14	5.9	18	5.5
Al-Haya	Not a member	85	90.4	222	94.1	307	93.0
	Ordinary member	2	2.1	4	1.7	6	1.8
	Executive member	7	7.5	10	4.2	17	5.2
Boroge	Not a member	85	90.4	220	93.2	305	92.4
	Ordinary member	4	4.3	4	1.7	8	2.4
	Executive member	5	5.3	12	5.1	17	5.2
Fulani Hausa	Not a member	83	88.3	215	91.1	298	90.3
	Ordinary member	6	6.4	9	3.8	15	4.5
	Executive member	5	5.3	12	5.1	17	5.2
Fulani(Kastina Kano)	Not a member	92	97.9	218	92.4	10	93.9
	Ordinary member	1	1.1	14	5.9	15	4.6
	Executive member	1	1.1	4	1.7	5	1.5

Source: Field survey, 2010

5.2 Respondents' Socio – economic status

Table 5.2 shows the distribution of respondents based on socio-economic status. The mean socio-economic status score was 77.0. About 85.1%, 53.4% and 62.4% of the respondents in Ogun, Oyo and across the states have high socio-economic status respectively. American Psychological Association (2013) linked lack of socio-economic status resources to riskier health behaviour and neuro-psychiatric dysfunction and injuries. Semi-settled pastoralists of high socio-economic status are usually better informed about innovation and can easily influence their colleagues (Weng, 2000). Channelling dissemination of information on diseases prevention techniques through them will have multiplier effect. However, the tendency to choose any life style not minding the susceptibility to HIV/AIDS infection is higher among semi-settled pastoralists of higher socio-economic status. The semi-settled pastoralists of high socio-economic status should be the target of disease prevention intervention programme.

Table 5.2 Distribution of respondents based on socio – economic status

Categories	Ogun state			Oyo state			Across the states		
	n = 94			n = 236			n = 330		
	Score range	F	%	Score range	F	%	Score range	F	%
High status	85.8-259	80	85.1	55.2-765	126	53.4		206	62.4
Low status	1.0-85.7	14	14.9	2.0-55.1	110	46.6		124	37.6
Total		94	100		236	100		330	100
Mean score		85.8			55.2			77.0	
Standard deviation		35.94			81.1				

Field survey, 2010

5.3 Respondents' sources of information on HIV/AIDS prevention techniques

Table 5.3 shows that 94.7% and 74.2% of the respondents in Ogun and Oyo states respectively received information on HIV/AIDS prevention techniques through radio. This agrees with Olujide, et.al. (2006) that radio is the major source of information to rural dwellers on HIV/AIDS. In a study conducted in Ogun State among secondary school students, Odusanya and Bankole (2008) ranked radio first among other sources of information on HIV/AIDS prevention techniques.

Ndakotsu (2001) further observed that radio is a powerful facilitator of educating rural dwellers. This corroborates George (1990) that, worldwide, radio reaches larger audience of individuals of less education and lower socio-economic status. Olowu and Igodan (1989) and Mohammed and Wanaso (1992) specifically gave credence to radio as a major source of information to farmers among various types of mass media in Nigeria. Ajidagba, Yusuf and Olumorin (2009) findings revealed that radio is easily affordable, accessible, and often more handy to use than TV by the semi-settled pastoralists. Other sources of information used by the respondents to access information on HIV/AIDS prevention techniques include mosque (29.4%) and friends (27.0%). The implication of the result is that health innovation targeted at semi-settled pastoralists will be effective if channelled through radio.

Cattle market is another source of information to semi-settled pastoralists on HIV/AIDS prevention techniques. About 16.0%, 11.0% and 12.4% of the semi-settled pastoralists in Ogun, Oyo and across the states respectively accessed

information on HIV/AIDS prevention techniques through cattle market. Though the semi-settled pastoralists make regular visit at the cattle market (Ogunsanya and Popoola , (1999), yet, Abdulrasaaq and Jubril, (2008) identified language barrier as one of the limiting factors to the effectiveness of this source of information. Abdulrasaaq and Jubril (2008) further reiterated that most information dissemination at the cattle market had focused on the benefits the semi-settled pastoralists will derive from the livestock they raise rather than protecting human capital.

About 2.0%, 0% and 11.0% of the respondents obtained information on HIV/AIDS prevention techniques through customers. The interpersonal interaction involved in this source of information ought to make it effective than others, but Abdulrasaaq and Jubril, (2008) observed that the semi-settled pastoralists and the Yoruba (who are the immediate and main customers of the semi-settled pastoralists) in southwestern Nigeria hardly communicate with each other, and less on the subject of health care.

The low percentage of respondents' recipient of information on HIV/AIDS prevention techniques from television (1.5%), billboard (1.2%) and public lecture (0.6%) justify the assertion of Francis (2000) that Nigeria's mass media do not serve rural areas. Contrary to this finding, Odusanya and Bankole (2006) ranked bill boards/posters and television second and third respectively among other sources of information on HIV/AIDS prevention techniques among the literate in Ogun State. The low literacy level of the semi-settled pastoralist in Ogun state (Oyesola, 2000) might have responsible for their low access to information on bill boards/posters.

The potentials of utilisation of television as audio visual medium over others communication in the dissemination of information on animal and human health issues among semi-settled pastoralists will be maximized if television is handy in such a way that it can be easily carry along during herding. Lack of pastoralists or Fulani based extension health worker might responsible for low utilisation of public lecture (0.6%) as sources of information on HIV/AIDS prevention techniques.

To improve acceptance and communication of HIV/AIDS prevention techniques information among semi-settled pastoralists, Abdulrasaaq and Jubril (2008) suggested that pastoralists should be selected and recruited for standardized training as nomadic community health workers.

Table 5.3 Respondents' sources of information on HIV/AIDS prevention techn

Sources of information	Ogun State		Oyo State		Across the States	
	F	**%**	**F**	**%**	**F**	**%**
Radio	89	94.7	175	74.2	264	80.0
Mosque	34	36.2	63	26.7	97	29.4
Friends	49	52.1	40	16.9	89	27.0
Customers	00	00	25	10.6	25	7.6
Cattle market	15	16.0	26	11.0	41	12.4
Television	00	00	5	2.1	5	1.5
Bill board	00	00	4	1.7	4	1.2
Lecture	00	00	2	0.8	2	0.6

Field survey, 2010

5.4 Semi-settled pastoralists knowledge of HIV/AIDS prevention techniques

In Table 5.4, 25 knowledge items on HIV/AIDS prevention techniques were presented. Semi-settled pastoralists had high knowledge on 15 items. Some of these include, sharing syringes/needles ($\bar{x} = 0.9$), sharing of spouse ($\bar{x} = 0.9$), sharing tattooing instrument ($\bar{x} = 0.9$) and screening blood before transfusion ($\bar{x} = 0.8$). This finding is consistent with previous study in Somalia (Roy and David, 2012) which have reported semi-settled pastoralists having high level of HIV/AIDS knowledge in the same knowledge items. On the other hand, semi-settled pastoralists had low knowledge level about items such as HIV can be transmitted through air ($\bar{x} = 0.1$) and HIV transmission through food ($\bar{x} = 0.1$). The semi-settled have a misconception that most diseases are airborne or product of poor hygienic practices, which is the reason why semi-settled pastoralists do esteem personal hygiene practices (Machika, 2010 and Haslwimmer, 2004). Knowledge level on items such as 'pre-marital sex' ($\bar{x} = 0.2$), 'use of condoms' ($\bar{x} = 0.4$) and 'HIV can be prevented by avoiding things that can attract curse' ($\bar{x} = 0.3$) among others were also low. One explanation for the 'HIV can be prevented by avoiding things that can attract curse's low knowledge level can be sought in cultural and religious roots where pre-marital sex, extramarital sex, and sexual activity without being married and stealing of cattle are not situated in religious and cultural framework of the Muslim communities (Dejong et. al. 2005). As a result, this behaviour is deemed "deviant" and "immoral" and therefore deserves punishment, which comes from God in the form of HIV/AIDS (Cok, Gray and Ersever, 2001). Getnet, Damen and Amy (2008) found that correct identification of misconceptions

about HIV/AIDS prevention techniques was significantly low among the semi-settled pastoralists. However, in health related issues, the little area of inadequacy in knowledge on HIV/AIDS prevention techniques is still dangerous to human existence. Olivia, (2006) pointed out that people who do possess inadequate knowledge about HIV often do not protect themselves because they lack the skills, support or incentives to adopt safe behaviours. Effort should be geared towards increasing semi-settled pastoralists' knowledge of HIV/AIDS prevention techniques.

Table 5.4: Distribution of Respondents based on Knowledge of HIV/AIDS prevention techniques

ITEMS	Ogun n=94 %	Oyo n=236 %	Total n=330 %	Mean	SD
Sharing of spouse with others.	100.0	89.4	92.4	0.9	0.265
Pre-marital sex.	14.9	17.4	16.7	0.2	0.373
Mutual faithful monogamous sexual relationship.	83.0	57.6	64.9	0.7	0.478
Avoidance of Sexual promiscuity.	98.9	62.7	73.0	0.7	0.444
Use of condoms.	36.2	39.4	38.9	0.4	0.487
Sharing barbing materials.	92.6	64.8	72.7	0.7	0.446
Sharing syringes / needles.	97.9	94.1	95.2	0.9	0.215
Sharing tattooing instrument.	98.9	88.1	91.2	0.9	0.284
Screening blood before transfusion.	85.1	80.9	82.1	0.8	0.384
Sharing of toothbrush or chewing stick.	59.6	82.2	75.8	0.8	0.429
Traditional ceremonies and practices such as scarification or circumcision.	68.1	60.6	62.7	0.6	0.484
Traditional forms of birth deliveries and medical practices.	44.7	67.8	61.2	0.6	0.488
Pregnancy by HIV infected women.	95.7	57.6	68.5	0.7	0.465
HIV transmission through food.	2.1	14.4	10.9	0.1	0.312
HIV cannot be transmitted through drinking water.	34.0	33.5	33.6	0.3	0.473
HIV can be transmitted through air.	1.1	11.9	8.8	0.1	0.284
HIV can be prevented by avoiding things that can attract curse.	8.5	30.9	24.6	0.3	0.431
Transplanting of an organ of an infected person is evidence of love towards the AIDS patient.	00	25.0	17.9	0.2	0.384
Reuse of unsterilised ear piercing instruments is a sign of love among siblings.	1.1	33.1	23.9	0.2	0.427
HIV can be transmitted from infected woman to infant through breastfeeding.	94.7	67.8	74.5	0.8	0.431
Application of microbicides before sex can prevent sexually transmitted diseases.	77.7	36.9	48.5	0.5	0.501
HIV can be contracted through hand shake with infected person.	97.9	71.6	79.1	0.8	0.407
Insect bite and especially mosquito can transmit HIV.	97.9	65.3	74.6	0.8	0.436
HIV can be spread through contact with sweat of an infected person.	75.5	53.4	59.7	0.6	0.491
Sharing plate/food with infected person can predispose one to HIV infection.	92.6	58.9	68.5	0.7	0.465

Field survey, 2010

5.5 Categorisation of respondents based on knowledge of HIV/AIDS prevention techniques

The summary of the semi-settled pastoralists' knowledge of HIV/AIDS prevention techniques is presented in Table 5.5. The mean knowledge score was 15.3 (± 2.0) and 13.5 (± 2.3) in Ogun and Oyo States respectively. However, across the states the mean knowledge score was 14.0 (± 2.3) while 56.1% had high knowledge of HIV/AIDS prevention techniques. In Ogun and Oyo States, 60.6% and 52.5% of the semi-settled pastoralists had high knowledge of HIV/AIDS prevention techniques respectively. This finding is contrary to that of Salma (2010) view that in Nigeria; living in the rural areas has left the rural dwellers informed to have low knowledge of HIV/AIDS prevention techniques and how the virus is contracted. This may be due to the fact that pastoralists do go about, even while herding, listening to their radio (Oyesola, 2000), which could have granted them better accessed to information on HIV/AIDS prevention techniques being relayed regularly on radio in southwestern Nigeria (Adelore, et.al. 2006).

Semi-settled pastoralists' radio listening habit might have made them better informed about animal and human health information relayed on radio than other rural dwellers. This finding is also contrary to that of Getnet, Damen and Amy (2008) in Ethopia, where the pastoralists was said to have low knowledge of HIV/AIDS prevention techniques. This suggests that HIV/AIDS prevention education sensitization in southwestern Nigeria adequately cover the rural areas.

Intervention programme to improve and sustain semi-settled pastoralists' knowledge level on HIV/AIDS prevention should be initiated.

Table 5.5 further revealed that in Ogun State the mean knowledge score on HIV/AIDS prevention techniques ($\bar{x} = 15.3, \pm 2.0$) and the semi-settled pastoralists in high HIV/AIDS prevention techniques knowledge category (60.6%) was higher than that of Oyo State. Ogun State was ranked second in southwestern Nigeria on HIV prevalence rate, which attempt to reduce, might have made the government of Ogun State to take increasing the knowledge of HIV/AIDS prevention techniques among her subjects a priority than other states in the Southwestern Nigeria.

Table 5.5: Categorisation of respondents based on knowledge of HIV/AIDS prevention techniques

Categories	Ogun State			Oyo State			Across the states		
	Score range	n=94 F	%	Score range	n=236 F	%	Score range	n=330 F	%
Low knowledge	12.0-15.2	37	39.4	7.0-13.4	112	47.5	7.0-13.9	145	43.9
High knowledge	15.3-18.0	57	60.6	13.5-19.0	124	52.5	14.0-19.0	185	56.1
Mean score		15.3			13.5			14.0	
Standard deviation		± 2.0			± 2.3			± 2.3	

5.6 Attitude towards utilisation of HIV/AIDS prevention techniques

Table 5.6 presents the attitude of semi-settled pastoralists towards utilisation of HIV/AIDS prevention techniques. From 16 attitudinal statements of semi-settled pastoralists disposition to HIV/AIDS prevention technique presented in Table 5.6, semi-settled pastoralists had favourable disposition with 13 statements, these include, prostitutes are immune against HIV/AIDS infection ($\bar{x} = 3.9$), HIV/AIDS is not real ($\bar{x} = 3.9$), I prefer escape marriage ($\bar{x} = 3.9$). The favourable disposition observed on attitudinal statements such as 'prostitutes are immune against HIV/AIDS infection' and, 'I prefer escape marriage' are in line with previous study (Oluyemi, 2008). The cultural and religion background of the pastoralists forbid them to go into such relationship. The implication of this finding is that innovation must be cultural and religious compliance for adequate acceptance.

However, semi-settled pastoralists had unfavourable disposition with statements such as abstinence is practically impossible method of preventing HIV/AIDS infection ($\bar{x} = 2.4$), I make use of condom whenever I am having extra-marital affairs ($\bar{x} = 2.7$). This finding is in line with the finding IRIN (2011) wherein pastoralists in Turkana at Kenya had negative disposition towards usage of condom due to their wrong perception that their penises are longer than what condom can accommodate. Others felt using condom is like eating candy while the wrapper is still on. Olivia, (2006) pointed out that men in southern Africa regularly do not want to use condoms, because of perception that "flesh to flesh" sex is equated with

masculinity and is necessary for male health. Condoms also have strong associations of unfaithfulness, lack of trust and love, and disease.

Table 5.7 and Table 5.8 present the attitude of semi-settled pastoralists towards utilisation of HIV/AIDS prevention techniques in Ogun and Oyo States respectively. The respondents in Ogun and Oyo States were favourably disposed towards 12 and 11 items respectively. The respondents in Ogun State were more favourable disposed ($\bar{x} = 4.7$) towards prostitutes are immune against HIV/AIDS and so I visit them once in a while than those in Oyo state ($\bar{x} = 3.5$). Respondents in Oyo State were not favourably disposed ($\bar{x} = 2.3$) to use of condom with multiple partners as those in Ogun State ($\bar{x} = 3.9$). Olujide,et.al. (2006) confirm unfavourable disposition of rural dwellers to use of condom. Intervention programme should be geared towards changing their unfavourable disposition towards use of condom.

Table 5.6 Distribution of respondents across Ogun and Oyo states based on attitude towards HIV/AIDS prevention techniques

Attitudinal statements	SA	A	U	D	SD	Mean
I use condom when having sex with multiple partners because it prevents contracting HIV/AIDS.	96 (29.1)*	72 (21.8)	33 (10.0)	30 (9.1)	99 (30.0)	3.1
Abstinence is practically impossible method of preventing HIV/AIDS infection.	98 (29.7)	121 (36.7)	54 (16.4)	12 (3.6)	45 (13.6)	2.4
I make use of condom whenever I am having extra-marital affairs	51 (15.5)	57 (17.3)	66 (20.0)	44 (13.3)	122 (33.9)	2.7
Tattooing instruments have no health implication.	39 (11.8)	62 (18.8)	57 (17.3)	64 (19.4)	108 (32.7)	3.4
I engage the services of public nail cutter.	17 (5.2)	66 (20.0)	43 (3.0)	58 (17.6)	146 (44.2)	3.8
I do re-use razor blade among friends and family members because there is nothing bad in it.	25 (7.6)	47 (14.2)	38 (11.5)	82 (24.9)	138 (41.8)	3.8
I prefer escape marriage.	28 (8.5)	34 (10.3)	40 (12.1)	83 (25.2)	145 (43.9)	3.9
Re-use of blades, needles or syringe in hospital can predispose one to HIV/AIDS.	124 (37.6)	97 (29.4)	37 (11.2)	29 (8.8)	43 (13.0)	3.7
Avoidance of handshake with AIDS patients help to prevent HIV/AIDS.	71 (21.5)	41 (12.4)	41 (12.4)	106 (32.1)	71 (21.5)	3.2
Blood screening is not necessary if blood transfusions are done among close relation.	31 (9.4)	60 (18.2)	40 (12.1)	73 22.1)	126 (38.2)	3.6
I do avoid sharing of toothbrush/chewing stick because it can help in spreading AIDS.	108 (32.7)	112 (33.9)	35 (10.6)	37 (11.2)	38 (11.5)	3.7
I do not get treatment from quack doctor to prevent exposure to HIV/AIDS.	116 (35.1)	90 (27.3)	39 (11.8)	34 (10.3)	51 (15.5)	3.8
Blood screening is mandatory if I must donate or transfuse blood.	26 (7.9)	11 (3.3)	51 (15.5)	130 (39.4)	112 (33.9)	21
Prostitutes are immune against HIV/AIDS and so I visit them once in a while.	34 (10.3)	38 (11.5)	31 (9.4)	61 (18.5)	166 (50.3)	3.9
Injury sustained during conflicts cannot predispose one to HIV/AIDS.	46 (13.9)	40 (12.2)	95 (28.8)	39 (11.8)	110 (33.3)	3.4
HIV/AIDS is not real; it is only an attempt to prevent promiscuity.	37 (11.2)	32 (9.7)	37 (11.2)	62 (18.8)	162 (49.1)	3.9

Source: Field survey 2010

* Figures in parentheses are percentages

Table 5.7 Distribution of respondents in Ogun State based on Attitude towards HIV/AIDS prevention techniques

Attitudinal statements	SA	A	U	D	SD	Mean
I use condom when having sex with multiple partners because it prevents contracting HIV/AIDS.	1 (1.1) *	13 (13.8)	22 (23.4)	9 (9.6)	49 (52.1)	3.9
Abstinence is practically impossible method of preventing HIVAIDS /infection.	14 (14.9)	47 (50.0)	32 (34.0)	1 (1.1)	0 (00)	2.2
I make use of condom whenever I am having extra-marital affairs	1 (1.1)	2 (2.1)	21 (22.3)	11 (11.7)	59 (62.7)	1.7
Tattooing instruments have no health implication.	0 -	0 -	4 (4.3)	38 (40.4)	52 (55.3)	(4.5)
I engage the services of public nail cutter.	0 -	0 -	0 -	31 (33.0)	63 (67.0)	(3.4)
I do re-use razor blade among friends and family members because there is nothing bad in it.	0 -	0 -	0 -	30 (31.9)	64 (68.1)	4.6
I prefer escape marriage.	1 (1.1)	0 -	0 -	29 (30.9)	64 (68.1)	(4.7)
Re-use of blades, needles or syringe in hospital can predispose one to HIV/AIDS.	53 (56.4)	21 (22.3)	2 (2.1)	10 (10.6)	8 (8.5)	(4.3)
Avoidance of handshake with AIDS patients help to prevent HIV/AIDS.	42 (44.7)	1 (1.1)	3 (3.2)	33 (35.1)	15 (15.9)	(2.7)
Blood screening is not necessary if a blood transfusion is done among close relation.	0 -	4 (4.3)	0 -	33 (35.1)	57 (60.6)	(4.5)
I do avoid sharing of toothbrush/chewing stick because it can help in spreading AIDS.	52 (55.3)	30 (31.9)	4 (4.3)	4 (4.3)	4 (4.3)	(4.3)
I do not get treatment from quack doctor to prevent exposure to HIV/AIDS.	53 (56.4)	31 (33.0)	5 (5.3)	1 (1.1)	4 (4.3)	(3.3)
Blood screening is mandatory if I must donate or transfuse blood.	0 -	0 -	4 (4.3)	65 (69.1)	25 (26.6)	1.8
Prostitutes are immune against HIV/AIDS and so I visit them once in a while.	0 -	0 -	3 (3.2)	20 (21.3)	71 (75.5)	4.7
Injury sustained during conflicts cannot predispose one to HIV/AIDS.	0 -	0 -	32 (34.0)	20 (21.3)	42 (44.7)	4.1
HIV/AIDS is not real; it is only an attempt to prevent promiscuity.	0 -	0 -	7 (7.4)	27 (28.7)	60 (63.8)	4.6

Source: Field survey 2010

* Figures in parentheses are percentages

- **Table 5.8: Distribution of respondents in Oyo State based on attitude towards HIV/AIDS prevention techniques**

Attitudinal statements	SA	A	U	D	SD	Mean
I use condom when having sex with multiple partners because it prevents contracting HIV/AIDS.	38 (40.3)*	24 (25.0)	11 (4.7)	21 (8.9)	48 (20.3)	2.3
Abstinence is practically impossible method of preventing HIV/AIDS infection.	84 (35.6)	74 (31.4)	22 (9.3)	11 (4.7)	45 (19.1)	2.4
I make use of condom whenever I am having extra-marital affairs	50 (21.2)	55 (23.3)	45 (19.1)	33 (13.9	53 (22.5)	2.9
Tattooing instruments have no health implication.	89 (16.5)	62 (26.3)	53 (22.5)	26 (11.0	56 (23.7)	1.8
I engage the services of public nail cutter.	17 (7.2)	66 (28.0)	43 (18.2)	27 (11.4)	83 (35.2)	3.4
I do re-use razor blade among friends and family members because there is nothing bad in it.	25 (10.6)	47 (19.9)	38 (16.1)	52 (22.0)	74 (31.4)	3.4
I prefer escape marriage.	27 (11.5)	34 (14.4)	40 (16.9)	54 (22.9	81 (34.3)	3.5
Re-use of blades, needles or syringe in hospital can predispose one to HIV/AIDS.	71 (30.1)	76 (32.2)	35 (14.8)	19 (8.1)	35 (14.8)	3.6
Avoidance of handshake with AIDS patients help to prevent HIV/AIDS.	41 (12.3)	56 (16.9)	53 (16.1)	101 (30.9)	78 (23.7)	3.4
Blood screening is not necessary if blood transfusions are done among close relation.	31 (13.1)	56 (23.7)	40 (16.9)	40 (16.9)	69 (29.2)	3.3
I do avoid sharing of toothbrush/chewing stick because it can help in spreading AIDS.	56 (23.7)	82 (34.8)	31 (13.1)	33 (14.0	34 (14.4)	3.6
I do not get treatment from quack doctor to prevent exposure to HIV/AIDS.	63 (26.7)	59 (25.0)	34 (14.4)	33 (14.0	47 (19.9)	3.2
Blood screening is mandatory if I must donate or transfuse blood.	87 (36.9)	65 (27.5)	47 (19.9)	11 (4.7)	26 (11.0)	2.3
Prostitutes are immune against HIV/AIDS and so I visit them once in a while.	34 (14.4)	38 (16.1)	28 (11.9)	41 (17.4	95 (40.3)	3.5
Injury sustained during conflicts cannot predispose one to HIV/AIDS.	46 (19.5)	40 (16.9)	63 (26.7)	19 (8.1)	68 (28.8)	3.1
HIV/AIDS is not real; it is only an attempt to prevent promiscuity.	37 (15.7)	32 (13.6)	30 (12.7)	35 (14.8	102 (43.2)	3.6

Source: Field survey 2010

* Figures in parentheses are percentages

5.7 Categorisation of respondents based on attitude towards utilisation of HIV/AIDS prevention techniques

The summary of the semi-settled pastoralists' attitude towards utilisation of HIV/AIDS prevention techniques is presented in Table 5.9. In Ogun State the mean attitudinal score was 62.1 (± 4.0) and 85.1% were positively disposed to utilisation of HIV/AIDS prevention techniques. However, in Oyo State the mean attitudinal score was 52.9 (± 10.2) and 45.8% were favourably disposed to utilisation of HIV/AIDS prevention techniques. Higher knowledge level of HIV/AIDS prevention techniques observed at Ogun State than Oyo State could have resulted in respondents in Ogun State been more favourably disposed to HIV/AIDS prevention techniques than those in Oyo State. This is in agreement with Olujide, et.al. (2006) that there is significant variation in the attitude of the rural dwellers towards utilisation of HIV/AIDS prevention techniques. Across the states, the mean attitudinal score was 55.6 (± 9.8) while 57.0% and 43.0% were favourably and unfavourably disposed to utilisation of HIV/AIDS prevention techniques respectively. Effort should be geared towards promoting and sustaining existing positive attitude of semi-settled pastoralists in southwestern Nigeria towards utilisation of HIV/AIDS prevention techniques. However, Oyo State should be given greater attention.

Table 5.9: Categorisation of respondents based on attitude towards utilisation of HIV/AIDS prevention techniques

Categories	Ogun State			Oyo State			Across the states		
	Score range	n=94		Score range	n=236		Score range	n=330	
		F	%		F	%		F	%
Unfavourable	50.0-62.0	14	14.9	27-0-52.8	128	54.2	27-0-55.6	142	43.0
Favourable	62.1-68.0	80	85.1	52.9-76.0	108	45.8	55.6-80.0	182	57.0
Mean score		62.1			52.9			55.6	
Standard deviation	±4.0			±10.2			±9.8		

Field survey, 2010

5.8 Constraints to utilisation of HIV/AIDS prevention techniques

Table 5.10 presents the ranking of the six felt constraints to utilisation of HIV/AIDS prevention techniques among the semi-settled pastoralists. In Ogun state religion, level of technicality involved and marriage cultural practices were ranked first, second and third respectively, while willingness to pay for the cost of procuring HIV/AIDS prevention techniques, marriage cultural practices and non-availability of the materials were ranked the first, second and third respectively among the respondents in Oyo State. However, for all the respondents in the two states, marriage cultural practices, religion and willingness to incur cost on HIV/AIDS prevention techniques were ranked first, second and third respectively.

The idea of designing a sustainable preventive programme for HIV/AIDS may not succeed if the totality of the semi-settled pastoralists' marriage cultural practices is not put into consideration. This finding corroborates Emeka (2008) that culture practices promote the spread of HIV/AIDS in Taraba State of Nigeria. Having known that marriage cultural practices impede utilisation of HIV/AIDS prevention techniques among semi-settled pastoralists, an effective HIV/AIDS control programme for the semi-settled pastoralists should consider re-orientation of them towards their specific cultural practices. This could be done through effective public enlightenment campaign in the area in order to highlight the dangers of their practices to them as they relate to the spread of the HIV virus. Distribution of HIV/AIDS techniques free or at highly subsidised rate will promote utilisation among semi-settled pastoralists.

Table 5.10 Weighted scores of constraints to utilisation of HIV/AIDS prevention techniques

Constraints	Ogun State				Oyo State				Across the states			
	Frequency		Total	Ranks	Frequency		Total	Ranks	Frequency		Total	Ranks
	Mild	Severe			Mild	Severe			Mild	Severe		
Marriage cultural practices	98	17	132	3rd	196	35	266	2nd	294	52	398	1st
Religion	57	135	327	1st	24	11	46	5th	93	140	373	2nd
Willingness to pay for HIV/AIDS prevention techniques	13	2	17	5th	140	73	286	1st	153	75	303	3rd
Taboo and Superstition	58	00	58	4th	53	60	113	4th	111	60	171	4th
Level of technicality involved	109	26	135	2nd	22	4	26	6th	131	30	161	5th
Non-availability of materials	13	00	13	6th	100	16	116	3rd	113	16	129	6th

5.9 Utilisation of HIV/AIDS prevention techniques

Table 5.11 presents distribution of respondents based on utilisation of HIV/AIDS prevention techniques. From 11 techniques on utilisation of HIV/AIDS prevention technique items presented in Table 5.11, semi-settled pastoralists had high utilisation of 10 HIV/AIDS prevention techniques across the states. These include, screening of blood before transfusion ($\bar{x}$=0.8); usage of new needles for tattooing ($\bar{x}$=0.7); usage of new syringes and needles for injection ($\bar{x}$=0.7) and use of personal blade / razor for cutting my nails ($\bar{x}$ =0.7). This may be due to the fact that all these HIV/AIDS prevention techniques support personal hygiene which is naturally esteemed high by the semi-settled pastoralists. Meanwhile, Moussa and Konfe/Tiendrebeogo (2008) identified personal hygiene as one of the HIV/AIDS prevention techniques. However, respondents had low utilisation of condom during sex with multiple partners ($\bar{x}$=0.4). This agrees with Adelore, et. al. (2006) that the usage of condom as a means of preventing HIV infection is low in the rural area of southwestern Nigeria. Getnet, Damen and Amy, (2008) also found low consistent condom use with non-regular sexual partners among pastoralists.

Specifically, the respondents in Ogun State had high utilisation in all the HIV/AIDS prevention techniques than those in Oyo State except for usage of new razor blade during barbering (61.7% and 74.2%) and usage of condom during sex with multiple partners (28.7% and 48.3%) in Ogun and Oyo States respectively. Disease prevention techniques that are in compliance with personal hygiene will be easily adopted by the semi-settled pastoralists.

Table 5.11: Distribution of respondents based on utilisation of HIV/AIDS prevention techniques

HIV/AIDS Prevention Techniques			Percentage	Mean
	Ogun n=94	Oyo n=236	Total n=330	
Avoid sharing of spouse with others	96.8	44.2	71.8	0.7
Avoiding pre-marital sexes	93.6	45.2	71.8	0.7
Usage of condom during sex with multiple partners	28.7	48.3	42.7	0.4
Usage of new syringes and needles for injection.	98.9	64.4	74.2	0.7
Usage of new razor blade during barbering.	61.7	74.2	70.6	0.7
Medical check-up at hospital for HIV status	92.6	64.0	72.1	0.7
Usage of new needles for tattooing.	89.4	67.4	73.6	0.7
Screening of blood before transfusion.	89.4	74.2	78.5	0.8
Use of personal blade / razor for cutting my nails.	96.8	63.6	73.0	0.7
Avoiding the use of commercial nail cutters common tools for cutting nails.	87.2	65.3	71.5	0.7
Avoid consulting traditional medical practitioners.	80.9	51.3	59.7	0.6

Source: Field survey, 2010

5.10 Categorisation of respondents' levels of utilisation of HIV/AIDS prevention techniques

The summary of the semi-settled pastoralists' utilisation of HIV/AIDS prevention techniques is presented in Table 5.12. The table shows that majority (87.2%) of the respondents in Ogun State had higher utilisation HIV/AIDS prevention techniques than those in Oyo State (41.5%). However, across the states, 55.5% of the respondents had high utilisation of HIV/AIDS prevention techniques, while 44.5% of the respondents had low utilisation. The mean utilisation scores were 9.2 (± 1.4), 7.0 (± 2.3) and 7.6 (± 2.3) in Ogun, Oyo and across the states respectively. Efforts towards encouraging utilisation of HIV/AIDS prevention techniques should be focused to Oyo than Ogun State.

Table 5.12: Categorisation of respondents' levels of utilisation of HIV/AIDS prevention techniques

Categories	Ogun State			Oyo State			Across the states		
		n=94			n=236			n=330	
	Score range	F	%	Score range	F	%	Score range	F	%
Low utilisation	5.0-9.1	12	12.8	2-6.9	138	58.5	2.0- 7.5	150	44.5
High utilisation	9.2-11.0	82	87.2	7.0-11	98	41.5	7.6– 11.0	180	55.5
Mean score	9.2			7.0			7.6		
Standard deviation	1.4			2.3			2.3		

Source: Field survey, 2010

5.11.0 Hypotheses testing and regression analysis on utilization of HIV/AIDS prevention techniques

5.11.1 Test of relationship between personal characteristics and utilisation of HIV/AIDS prevention techniques

Table 5.13 shows that among the personal characteristics of the respondents, level of education (χ^2 = 30.11, p < 0.05), understanding of Hausa language (χ^2 = 78.78, p < 0.05), level of understanding of Fulfulde language (χ^2 = 9.68, p < 0.05), understanding of English language (χ^2 = 14.20, p < 0.05) and level of understanding of Yoruba (χ^2 = 45.53, p < 0.05) are significantly related to utilisation of HIV/AIDS prevention techniques. This may be due to the fact that Yoruba and English are the popular languages of presenting information on HIV/AIDS prevention techniques in the study area (Adelore, et.al.2006), of which their extent of understanding of the languages will determine their level of acquisition and utilisation of the knowledge. However, Hausa and Fulfulde languages are the most popular languages among the semi-settled pastoralists. This agrees with Oladeji and Oyesola (2000), who viewed that education play a major role in information communication and consequently the acquisition and utilisation of knowledge on HIV/AIDS prevention techniques. Similarly, UNESCO (2003) is of the opinion that in multilingual country such as Nigeria, language issues have to be considered in any HIV/AIDS prevention programme. Similarly, massive public enlightenment programmes on health related issues must considered utilisation of appropriate language and modes that suit different target audience.

However, there was no significant relationship between sex ($\chi^2 = 1.22$, $p > 0.05$) and marital status ($\chi^2 = 0.56$, $p > 0.05$). Differences in sex and marital status may not count if knowledge is not available or acquired.

Table 5.13 Correlation and chi-square analysis of respondents' personal characteristics and utilisation of HIV/AIDS prevention techniques

Variables	df	Ogun State			Oyo State			Across the states		
		r-value	χ^2	p-value	r-value	χ^2	p-value	r-value	χ^2	p-value
Age	5	-0.09		.342	-.022		.528	-.018		.747
Level of education	5		17.25	0.000*		15.55	0.001*		30.11	0.001*
Sex	1		0.010	0.620		0.25	0.550		1.22	0.750
Marital status	1		0.45	0.570		0.62	0.260		0.56	0.820
Level of understanding Hausa language	2		52.55	0.000*		36.66	0.000		78.78	0.002*
Level of understanding Fulfulde language	2		12.01	0.000*		10.42	0.000*		9.68	0.003*
Level of understanding English language	2		15.9	0.000*		13.30	0.000*		14.20	0.000*
Level of understanding Yoruba language	2		32.42	0.000*		24.44	0.000*		45.53	0.000*

*Significant at 0.05

Source: Field survey, 2010

5.11.2 Test of relationship between socio-economic status and utilisation of HIV/AIDS prevention techniques

The result in Table 5.14 shows a negative significant relationship across the states ($r = -0.16$, $p < 0.05$) between social economic status of the semi-settled pastoralists and utilisation of HIV/AIDS prevention techniques. This could be due to the fact that semi-settled pastoralists of high ranking socio-economic status in the communities are less restricted by societal values and norms. The affluence and the respect associated and accorded them by the community members have afforded them the attitude towards certain practices such as multiple sexual partners. UNESCO (2003) pointed out that the people of high socio- economic status within the community are less constrained by societal norms, they are usually mobile, have predilection for multiple sexual partners and can afford whichever lifestyle they choose.

Table 5.14: Correlation analysis of relationship between semi-settled pastoralists' socio-economic status and utilisation of HIV/AIDS prevention techniques

Variables	Ogun State		Oyo State		Across the states	
	r-value	p-value	r-value	p-value	r- value	p-value
Socio-economic status of semi-settled pastoralists	-0.35	0.002*	-0.26	0.001*	-0.16	0.003*

*Significant at 0.05

Source: Field survey, 2010

5.11.3 Test of relationship between sources of information and utilisation of HIV/AIDS prevention techniques

Table 5.15 shows that out of the 8 sources of information used by semi-settled pastoralists to obtain information on HIV/AIDS prevention techniques, 5 were significantly related to utilisation of HIV/AIDS prevention techniques. These were mosque ($\chi^2 = 4.87$, $p < 0.05$), friends ($\chi^2 = 4.47$, $p < 0.05$), customers ($\chi^2 = 7.07$, $p < 0.05$), television ($\chi^2 = 6.09$, $p < 0.05$) and market ($\chi^2 = 9.85$, $p < 0.05$).

The significance of the sources of information stresses the fact that person to person information sources seem to be more credible among semi-settled pastoralists than the mass media. The mosque seems to be the most trusted means of information among semi-settled pastoralists. The experience and evidential messages that accompany prayer in mosque, friends, and customers might be responsible for the trend observed in this result. The ability to back up audio with visual could be associated with the significance of the television as a source of information. Majority of semi-settled pastoralists being illiterate will be able to observe and learn the demonstration on the use of any of the HIV/AIDS prevention techniques through visuals. This will help to overcome the constraints of technicality that had earlier being reported as a major constraint to the use of HIV/AIDS prevention techniques in this study. The display and drama in market places on HIV/AIDS prevention techniques could be associated with the significance of this information source. This affords the semi-settled pastoralists the opportunity to see and learn the practical implementation of some of the HIV/AIDS prevention techniques.

Although radio was the most popular source of information among semi-settled pastoralists, it has no significant relationship with the utilisation of HIV/AIDS prevention techniques. This may be connected with the fact that in the study area, the prominent languages of presentation on radio are *Yoruba and English* languages of which semi-settled pastoralists' level of understanding and comprehension are limited. The popular radio programmes on HIV/AIDS prevention such as; *abuleolokemerin, omonla, etiemelo* jingles on radio and newspapers, that are on-going then, were not presented in *Fulfulde or Hausa*, which are the best languages understood by semi-settled pastoralists (Adelore, et.al. 2006). To enhance better understanding and utilisation of information on HIV/AIDS and other diseases prevention techniques, effort should be geared towards promoting the utilisation of *Fulfulde and Hausa* languages in dissemination of the information among semi-settled pastoralists.

The contingency coefficient of mosque (0.12); friends (0.12); customers (0.15); radio (0.02); television (0.14); market (0.17); bill board (0.10); and lectures (0.09) revealed a weak relationship between them and the utilisation of HIV/AIDS prevention techniques. Multimedia approach in dissemination of information on HIV/AIDS and other diseases prevention techniques may not be effective among the semi-settled pastoralists; rather radio utilisation should be empowered.

Table 5.15: Chi-Square analysis showing relationships between sources of information and utilisation of HIV/AIDS prevention techniques

Variables	df	Ogun State		Oyo State		Across the States		Remarks	Contingency Coefficient
Sources of information		χ^{2*}	p value	χ^{2*}	p value	χ^{2*}	p value		
Mosque	1	6.12	0.002	5.52	0.001	4.87	0.030*	S	0.12
Friends	1	7.22	0.001	6.720	0.050	4.47	0.020*	S	0.12
Customers	1	9.55	0.010	8.520	0.010	7.07	0.040*	S	0.15
Radio	1	2.03	0.740	1.98	0.590	2.71	0.450	NS	0.02
Television	1	8.62	0.020	7.44	0.010	6.09	0.030*	S	0.14
Market	1	8.76	0.030	8.95	0.020	9.85	0.020*	S	0.17
Bill Board	1	1.99	0.550	2.32	0.470	3.22	0.520	NS	0.10
Lecture	1	1.56	0.690	1.19	0.990	1.79	0.660	NS	0.09

*Significant at 0.05

*Chi-square calculated

Source: Field survey, 2010

5.11.4 Test of relationship between knowledge and utilisation of HIV/AIDS prevention techniques

The result in Table 5.16 shows a significant relationship across the state ($r = 0.26$, $p < 0.05$) between knowledge and utilisation of HIV/AIDS prevention techniques. This could be attributed to the fact that there must be awareness before adoption. UNESCO (2003) pointed out that faulty knowledge results in careless behaviour. This result is consistent with the finding of Apata, Rahji, Apata, Ogunrewo, and Igbalajobi, (2010) where the scarcity of HIV/AIDS knowledge on prevention, limits the utilization of HIV/AIDS prevention techniques among older care-givers and orphan hoods in Benue State. This agrees with UNESCO (2003) that ignorance is a major reason why HIV infection is out of control, intervention programme towards increasing semi-settled pastoralists' knowledge on HIV/AIDS prevention techniques will increase and sustain utilization of HIV/AIDS prevention techniques among them.

Table 5.16: Correlation analysis of relationship between semi-settled pastoralists' knowledge and utilisation of HIV/AIDS prevention techniques

Variables	Ogun State		Oyo State		Across the states	
	r-value	p-value	r-value	p-value	r- value	p-value
Knowledge of HIV/AIDS prevention techniques	0.55	0.005*	0.45	0.001*	0.26	0.002*

*Significant at 0.05

Source: Field survey, 2010

5.11.5 Test of relationship between semi-settled pastoralists' attitude towards utilisation of hiv/aids prevention technique and utilisation of HIV/AIDS prevention techniques

The result in Table 5.17 shows a significant relationship across the states ($r = 0.665$, $p < 0.05$) between semi-settled pastoralists' attitude and utilisation of HIV/AIDS prevention techniques. This result is consistent with the findings of Ismail (2012) that pastoralists have negative attitude towards the use of condom and that they do not often take to prescribed preventive medicine.

Table 5.17: Correlation analysis of relationship between semi-settled pastoralists' attitude and utilisation of HIV/AIDS prevention techniques

Variables	Ogun State		Oyo State		Across the states	
	r-value	p-value	r-value	p-value	r- value	p-value
Semi-settled pastoralists' attitude on HIV HIV/AIDS prevention techniques	0.82	0.001*	0.76	0.001*	0.66	0.001*

*Significant at 0.05

Source: Field survey, 2010

5.11.6 Test of difference in the utilisation of HIV/AIDS prevention techniques by semi-settled pastoralists in Ogun and Oyo states

Table 5.18 shows that the semi-settled pastoralists in Ogun States ($\bar{x}$ = 9.16) used more HIV/AIDS prevention techniques than semi-settled pastoralists in Oyo State ($\bar{x}$ = 6.98). The result shows a significant difference (t = 10.449; $p < 0.05$) in the use of HIV/AIDS prevention techniques among semi-settled pastoralists in Oyo and Ogun States. The higher HIV prevalence rate in Ogun than other states in the southwestern Nigeria could have promoted higher utilisation of HIV/AIDS prevention techniques among semi-settled pastoralists in Ogun than Oyo (Olukoya and Agberu, 2012 and Odebode, 2007). Follow up programme that will promote and strengthening the utilisation of HIV/AIDS prevention techniques among semi-settled pastoralists should be encouraged in southwestern Nigeria.

Table 5.18: T-test Statistics showing differences in the utilisation of hiv/aids prevention techniques by semi-settled pastoralists in Ogun and Oyo states

States	Number of cases	df	Mean	Standard deviation	Standard error	Mean difference	t-value	p-value
Ogun	94	93	9.16	1.42	.148	9.15	10.449	0.00*
Oyo	236	235	6.98	2.27	.147	6.98		

*Significant at 0.05

Source: Field survey, 2010

5.11.7 Regression analysis on knowledge of HIV/AIDS prevention techniques

The result of multiple regression analysis of relationships between semi-settled pastoralists' personal characteristics and knowledge of HIV/AIDS prevention techniques is presented in Table 5.19. Across the states the independent variables were significantly related to knowledge of HIV/AIDS prevention techniques with F value of 2.28, $p < 0.05$; F value of 4.30, $p < 0.05$ and F value of 3.74, $p < 0.05$ in Ogun State, Oyo State and across the states respectively. The R-square value for all the significant variables in Ogun State, Oyo State and across the states were 0.64, 0.13 and 0.38 respectively, meaning that significant variables account for 64%, 13% and 38% variation in semi-settled pastoralists knowledge of HIV/AIDS prevention techniques in Ogun State, Oyo State and across the states respectively..

In Ogun, the significant determinants were age ($t = 2.84$, $p< 0.05$), marital status ($t = -4.00$, $p < 0.05$) and information sources ($t = 2.17$, $p< 0.05$) while in Oyo, the significant determinant were education ($t = -2.41$, $p< 0.05$) and socio economic status ($t = 4.20$, $p < 0.05$). This finding corroborates the argument of Chaparro (1999) who posited that the capacity to effectively use of knowledge in health intervention efforts is closely related to education. This view is also supported by Jacobs and Asokan (2000) that knowledge dissemination occurs through the system of formal education. Across the states the significant determinants were primary occupation ($t = 3.34$, $p < 0.05$) and socio-economic status ($t = 3.05$, $p < 0.05$). It implies that as semi-settled pastoralists get older, get married and have access to different sources of information the more knowledge they acquire on HIV/AIDS prevention techniques.

Table 5.19: Multiple regression analysis of relationship between personal characteristics of semi-settled pastoralists and knowledge of HIV/AIDS prevention techniques

Variables	Ogun State			Oyo State			Across the States		
	B value	Standardized Coefficient		B value	Standardized coefficient		B value	Standardized Coefficient	
		T	p value		T	p value		T	p value
Constant	7.025	2.206	0.01	15.148	6.279	.000	57.447	10.682	.000
Age	.308	2.836	.011*	-.369	-.459	.646	-.043	-.024	.981
Years in community	.096	.618	.545	.006	.275	.784	.037	.744	.457
Education	5.258	.740	.470	-1.131	-2.407	.017*	.228	.218	.828
Gender	.022	.049	.961	-.007	-.067	.947	-.416	-1.729	.085
Marital status	-10.623	-4.000	.001*	.314	1.574	.116	.829	1.867	.063
Primary occupation	2.081	.508	.618	-6.450	-.589	.556	.001	3.343	0.01*
Attitude	.338	.414	.684	-.689	-1.040	.299	.660	.447	.655
Constraints	4.383	2.107	.050	-.929	-1.538	.125	-3.269	-2.427	.016
Socio-economic status	-.004	-.138	.892	1.673	4.202	.000*	2.705	3.046	.003*
Information sources	6.303	2.168	.044*	1.235	1.244	.214	4.676	2.113	.035

Ogun State: F = 2.28; P = 0.05; R= 0 .80; R square = 0.64

Oyo State: F = 4.30; P =0.00; R= 0.36; R square = 0.13

Across the states: F = 3.74; P = 0.02; R= 0 .62; R square = 0.38

*Significant at 0.05

Source: Field survey, 2010

5.11.8 Regression analysis on attitude of HIV/AIDS prevention techniques

The result of multiple regression analysis of relationships between semi-settled pastoralists' personal characteristics and attitude of HIV/AIDS prevention techniques is presented in Table 5.20. Across the states the independent variables were significantly related to attitude of HIV/AIDS prevention techniques with F value of 3.19, $p < 0.05$; F value of 2.48, $p < 0.05$ and F value of 4.30, $p < 0.05$ in Ogun State, Oyo State and across the states respectively. The R-square value for all the significant variables in Ogun State, Oyo State and across the states were 0.16, 0.08 and 0.13 respectively, meaning that significant variables account for 16%, 8% and 13% variation in semi-settled pastoralists attitude of HIV/AIDS prevention techniques in Ogun State, Oyo State and across the states respectively.

In Ogun, the significant determinants was primary occupation ($t = 2.94$, $p< 0.05$), while in Oyo, the significant determinant was education ($t = 3.75$, $p< 0.05$. Peter, Marion, Drashi, Wenzha and Marc (2006) pointed out that the migration pattern of the primary occupation of semi-settled pastoralists make them to have negative attitude towards the use of condom. Across the states the significant determinants were education ($t = 2.41$, $p < 0.05$) and socio-economic status ($t = 4.20$, $p < 0.05$). This finding agrees with Olivia (2006) observation in South African culture wherein the socio-economic status accorded to women is lower than men. Men are socialised to believe that women are inferior and should be under their control; women are socialised to over-respect men and act submissively towards them. The resulting unequal power relation between the sexes, particularly when negotiating sexual encounters, increases women's vulnerability to HIV infection and accelerates the epidemic. Strengthening nomadic/migrant education in the study area

will not only increase the literacy level of the semi-settled pastoralists, but also enhances knowledge, disposition and utilisation of HIV/AIDS prevention techniques.

Table 5.20: Multiple regression analysis of relationship between personal characteristics of semi-settled pastoralists and attitude of HIV/AIDS prevention techniques

5.11.9 Regression analysis on utilisation of HIV/AIDS prevention techniques

The result of multiple regression analysis of relationships between semi-settled pastoralists' personal characteristics and utilisation of HIV/AIDS prevention techniques is presented in Table 5.21. Across the states the independent variables were significantly related to utilisation of HIV/AIDS prevention techniques with F value of 40.15, $p < 0.05$; F value of 64.59, $p < 0.05$ and F value of 25.91, $p < 0.05$ in Ogun State, Oyo State and across the states respectively. The R-square value for all

the significant variables in Ogun State, Oyo State and across the states were 0.82, 0.74 and 0.45 respectively, meaning that significant variables account for 82%, 74% and 45% variation in semi-settled pastoralists utilisation of HIV/AIDS prevention techniques in Ogun State, Oyo State and across the states respectively..

In Ogun, the significant determinants were attitude ($t = 3.20$, $p < 0.05$) and knowledge ($t = 11.20 < 0.05$), while in Oyo, the significant determinant were years in community ($t = 323.73$, $p < 0.05$), attitude ($t = 11.46$, $p < 0.05$) and knowledge ($t = 16.35$, $p < 0.05$). Across the states the significant determinants were years in community ($t = 3.73$, $p < 0.05$), educational level ($t = 2.51$, $p < 0.05$) and attitude ($t = 12.44$, $p < 0.05$). It implies that as semi-settled pastoralists stay longer in the community, acquires higher levels of education and are favourably disposed to HIV/AIDS prevention techniques, the more the utilisation of HIV/AIDS prevention techniques. Nuru (1988) acclaimed that the interaction between the pastoral community in the present day Nigeria and the settled community is making the pastoral community to be better enlightened than ever before on health and developmental issues. Consequently, the semi-settled pastoralists have desire for education and cry aloud to government for a desire to settle (Nuru, 1988 and UNESCO, 2003). Making the semi-settled pastoralists more sedentary will facilitate plan and access to basic amenities that can promote utilisation of HIV/AIDS prevention techniques among them. Strengthening nomadic/migrant education in the study area will not only increase the literacy level of the semi-settled pastoralists, but also enhances knowledge and utilisation of HIV/AIDS prevention techniques.

Table 5.21: Multiple regression analysis of relationship between personal characteristics of semi-settled pastoralists and utilisation of HIV/AIDS prevention techniques

Variables	Ogun State			Oyo State			Across the States		
	B value	Standardized Coefficient		B value	Standardized Coefficient		B value	Standardized Coefficient	
		T	p value		T	p value		T	P value
Constant	-3.43	-24,500	0.00*	1.35	-24.500	0.00	4.766	4.315	0.00
Age	-1.75	-10.938	0.92	-5.89	-490.833	0.65	-0.013	-1.362	0.76
Years in community	3.43	155.909	0.44	3.66	332.727	0.00*	0.036	3.733	0.00*
Education	-0.21	-0.840	0.68	9.25	97.368	0.86	0.198	2.513	0.03*
Gender	0.41	0.621	0.72	-0.56	-1.647	0.07	-0.084	-0.239	0.27
Marital status	-4.39	-7.197	0.35	-0.42	-0.857	0.53	-0.225	-0.498	0.53
Primary	0.31	1.409	0.55	8.04	68.136	0.65	-0.145	-0.937	0.57

occupation									
Attitude	0.16	3.200	0.00*	0.149	11.462	0.00*	2.846	12.441	0.00*
Knowledge	1.12	11.200	0.00*	0.899	16.345	0.00*	-0.076	-0.371	0.51
Socio-economic status	3.7	92.500	0.22	-1.36	-43.871	0.52	-0.222	-0.793	0.41
Information sources	-0.11	-1.100	0.44	1.40	24.561	0.37	-0.089	-0.405	0.17

Source: Field survey, 2010

Ogun State: F=40.15: P = 0.00: R= 0. 91; R square=0.82

Oyo State: F =64.59; P=0.00; R =0.86; R square =0.74

Across the States: F =25.91; P = 0.00; R =0.67; R square=0.448

*Significant at 0.05

CHAPTER SIX

SUMMARY, CONCLUSION AND RECOMMENDATIONS

6.1 Summary of major findings from the study

The study found that about 83.0% of the respondents were below 51 years of age. Almost all the respondents (90.0%) were married and less than 11.0% of them were literate. About 90.0%, 72.0% and 35.0% of the semi-settled pastoralists could speak *Fulfulde, Yoruba and Hausa* languages respectively. About 50.0% of semi-settled pastoralists have high and low socio-economic statuses respectively. The level of social organisation membership and participation was very low. The available sources of information on HIV/AIDS prevention techniques to the respondents include radio, mosque, friends, customers, cattle market, television, billboard and lecture. However, radio was found to be the most prominent of them all.

Respondents in Ogun State (85.1%) were more favourably disposed to utilisation of HIV/AIDS prevention techniques than those in Oyo State (45.8%), however across the states majority (55.1%) of the respondents had favourable attitude towards utilisation of HIV/AIDS prevention techniques, while 44.8 percent of the

respondents had unfavourable attitude. Majority of the respondents had negative disposition towards abstinence ($\bar{x}$=2.4) and use of condom during extra-marital affairs ($\bar{x}$=2.7). About 55.8% of the respondents had low knowledge of HIV/AIDS prevention techniques. The knowledge mean score of respondents in Ogun (15.3 ± 2.0) was higher than that of Oyo (13.5 ± 2.3), while across the states the knowledge mean score was 14.0 ± 2.3. Majority of respondents had high knowledge that HIV/AIDS can be prevented by avoiding sharing of syringe and needle in the hospital ($\bar{x}$=0.9), avoiding sharing of spouse ($\bar{x}$=0.9) and avoiding sharing of tattooing instrument ($\bar{x}$=0.9). However, majority of the respondents had low knowledge that HIV/AIDS can be prevented through avoiding transplanting of the body organ of an HIV/AIDS infected person ($\bar{x}$=0.2), avoiding the re-use of unsterilised ear piercing instrument ($\bar{x}$=0.2) and the use of condom ($\bar{x}$ =0.4). Religion and level of technicality involved in the use of HIV/AIDS prevention techniques were ranked first and second respectively as the most felt constraints to the utilisation of HIV/AIDS prevention techniques while willingness to pay the cost of procuring HIV/AIDS prevention techniques materials and culture were ranked first and second respectively in Oyo State. The respondents mean utilization score were 9.2, 7.0 and 7.6 in Ogun State, Oyo State and across the states respectively. Across the states, majority (55.5%) of the respondents had high utilisation of HIV/AIDS prevention techniques, while 44.5% of the respondents had low utilisation.

Significant relationships exist between level of education, level of understanding of *Hausa, Fulfulde, English and Yoruba* languages and utilisation of HIV/AIDS prevention techniques. There were significant relationships between knowledge, attitude, and utilisation of HIV/AIDS prevention techniques. Among the 8 sources of information available to the semi-settled pastoralists on HIV/AIDS

prevention techniques, across the Ogun and Oyo states, 5 were significantly related to utilisation of HIV/AIDS prevention techniques. These are mosque ($\chi^2 = 4.87$, $p < 0.05$), friends ($\chi^2 = 4.47$, $p < 0.05$), customers ($\chi^2 = 7.07$, $p < 0.05$), television ($\chi^2 = 6.09$, $p < 0.05$), and market ($\chi^2 = 9.85$, $p < 0.05$).

However, across the states there was a negative significant relationship between socio-economic status and utilisation of HIV/AIDS prevention techniques. There was significant difference in the use of HIV/AIDS prevention techniques by semi-settled pastoralists in Ogun and Oyo States.

6.2 Conclusion

From the findings of the study, it can be concluded that majority of the semi-settled pastoralists in the study area were married, with a mean age of 38.0 years, low educational status and were all Muslim. The respondents had low membership in social organisation while socio-economic status was high. Major sources of information on HIV/AIDS prevention techniques were radio and mosque with majority having high utilisation, high knowledge, favourably disposed and religion and willingness to pay the cost of procuring HIV/AIDS prevention techniques were ranked first in Ogun and Oyo respectively as the most felt constraints in the use of HIV/AIDS prevention techniques. Utilisation of HIV/AIDS prevention techniques was higher in Ogun than Oyo. The major contributors to knowledge of HIV/AIDS prevention techniques among semi-settled pastoralists in Ogun were age and marital status, and in Oyo, education and socio-economic status. Across the states, the major contributors to knowledge of HIV/AIDS prevention techniques were primary occupation and socio-economic status. In Ogun State the major predictor of attitude of semi-settled pastoralists towards of HIV/AIDS prevention techniques was primary

occupation while in Oyo education level was the major contributor. The major contributors to the utilisation of HIV/AIDS prevention techniques among semi-settled pastoralists in Ogun were attitude and knowledge, while in Oyo the major contributors were years of settlement in a community, attitude and knowledge. However, across the states, educational level was equally a major contributor to the utilisation of HIV/AIDS prevention techniques among semi-settled pastoralists.

6.3 Recommendations

Based on the empirical findings obtained from this study the following recommendations are made.

1. Education should be more functional and equally involve education of adult semi-settled pastoralists.
2. Radio programs on HIV and other health issues should be presented in *Fulfulde, Hausa and Yoruba* languages especially in southwestern Nigeria.
3. Use of radio and religious organisation to reach semi-settled pastoralists with information should be strengthened.
4. Provision of free condoms to semi-settled pastoralists.
5. The semi-settled pastoralists' hygienic practices that promote diseases prevention should be strengthened.
6. Effort should be geared more in Oyo State towards increasing and sustaining semi-settled pastoralists' knowledge and utilisation of HIV/AIDS prevention techniques than in Ogun State.
7. Intervention efforts should be geared towards sensitizing semi-settled pastoralists about HIV/AIDs prevention techniques through socialising agents like mosques, friends and customers.

6.4 Areas for further studies

1. The study only covered southwestern geopolitical zone of Nigeria; therefore similar studies could be carried out in other geopolitical zones of the country to determine knowledge and utilization of HIV/AIDS prevention techniques among the semi-settled pastoralists.

2. The population of the study was the semi-settled pastoralists in southwestern Nigeria; therefore similar studies could be carried out among the settled and nomadic pastoralists in southwestern Nigeria

3. A study should be carried out on the knowledge and utilization of HIV/AIDS among the settled rural dwellers in Ogun and Oyo States

4 The study covered all respondents whether male or female; therefore, a study should be conducted based on gender perspective of knowledge and utilization of HIV/AIDS prevention techniques among the semi-settled pastoralists

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APPENDIX 1

University of Ibadan

Faculty of Agriculture and Forestry,

Department of Agricultural Extension and Rural Development

Interview Schedule Guide for Knowledge and Utilisation of HIV/AIDS Prevention Techniques among Semi-settled Pastoralists in Southwestern Nigeria

Dear respondents,

I am a postgraduate student from University of Ibadan conducting a research on the above research topic. The essence is to elicit responses on your knowledge and utilisation of HIV/AIDS prevention techniques.

Please feel free to respond to the questions. The information gathered is strictly for research purpose and will be treated with utmost confidentiality. Thank you for your anticipated cooperation

Oladele, O.T.

SURVEY IDENTIFICATION NUMBER	
NAME OF CAMP	
LOCAL GOVERNMENT AREA	
STATE	

Personal characteristics

How old are you?

What is the name of your camp?

How long have you been in this community?

What is your highest level of education? Tick ( ) as appropriate

No formal education ()

Quranic Education ()

Primary school ()

Secondary Education ()

Tertiary Education ( )

Indicate your sex. Tick **( )** as appropriate

Male ( )

Female ( )

Marital status. Tick **( )** as appropriate

Single ( )

Married ( )

Widowed ( )

Divorced ( )

Level of language Understanding

Kindly indicate which of the following languages you understand and your level of understanding each of them.

Language	Level of Understanding		
	Cannot speak or read	Speak alone	Speak and read
Hausa			
Fulfulde			
Yoruba			
English			
Others (specify)			

Membership of social organisation

Kindly indicate which social organisation you belong to and your level of participation.

Social Organization	Level of Participation		
	Not a member	Ordinary Member	Executive Member
Miyetti Allah			
Al-Haya			

Boroge			
Fulani Hausa			
Fulani(Kastina Kano)			
Others (specify)			

Socio – economic status

Which of the following items do you possess?

Items	Non possession	Possession	
		Possession	Numbered possessed
Functioning motor cycle			
Functioning motor vehicle			
Radio			
Size of farm (acre)			
chieftaincy title			
Leader of organisation			
Visit to Mecca			
Number of wives			
Number of cattle			

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Sources of Information on HIV/AIDS Prevention Techniques

Indicate your source of Information on HIV/AIDS Prevention Techniques

Sources of Information	Yes	No
Radio		
Mosque		
Friends		
Customers		
Cattle market		
Television		
Bill board		
Lecture		
Others		

Knowledge of utilisation of HIV/AIDS prevention techniques

Kindly react to the following statements, which border on your knowledge of utilisation of HIV/AIDS prevention techniques

ITEMS	Yes	No
Sharing of spouse with others.		
Pre-marital sex.		
Mutual faithful monogamous sexual relationship.		
Avoidance of Sexual promiscuity.		
Use of condoms.		

Sharing barbing materials.		
Sharing syringes / needles.		
Sharing tattooing instrument.		
Screening blood before transfusion.		
Sharing of toothbrush or chewing stick.		
Traditional ceremonies and practices such as scarification or circumcision.		
Traditional forms of birth deliveries and medical practices.		
Pregnancy by HIV infected women.		
HIV transmission through food.		
HIV cannot be transmitted through drinking water.		
HIV can be transmitted through air.		
HIV can be prevented by avoiding things that can attract curse.		
Transplanting of an organ of an infected person is evidence of love towards the AIDS patient.		
Reuse of unsterilised ear piercing instruments is a sign of love among siblings.		
HIV can be transmitted from infected woman to infant through breastfeeding.		
Application of microbicides before sex		

can prevent sexually transmitted diseases.		
HIV can be contracted through hand shake with infected person.		
Insect bite and especially mosquito can transmit HIV.		
HIV can be spread through contact with sweat of an infected person.		
Sharing plate/food with infected person can predispose one to HIV infection.		

Attitude towards utilisation of HIV/AIDS Prevention Techniques

Kindly react to the following statements, which border on your attitude towards utilisation of HIV/AIDS prevention techniques.

ATTITUDINAL STATEMENTS	SA	A	U	D	SD
I use condom when having sex with multiple partners because it prevents contracting HIV/AIDS.					
Abstinence is practically impossible method of preventing HIV/AIDS infection.					
I make use of condom whenever I am having extra-marital affairs					
Tattooing instruments have no health implication.					
I engage the services of public nail cutter.					
I do re-use razor blade among friends and family members because there is nothing bad in it.					
I prefer escape marriage.					

Re-use of blades, needles or syringe in hospital can predispose one to HIV/AIDS.					
Avoidance of handshake with AIDS patients help to prevent HIV/AIDS.					
Blood screening is not necessary if blood transfusions are done among close relation.					
I do avoid sharing of toothbrush/chewing stick because it can help in spreading AIDS.					
I do not get treatment from quack doctor to prevent exposure to HIV/AIDS.					
Blood screening is mandatory if I must donate or transfuse blood.					
Prostitutes are immune against HIV/AIDS and so I visit them once in a while.					
Injury sustained during conflicts cannot predispose one to HIV/AIDS.					
HIV/AIDS is not real; it is only an attempt to prevent promiscuity.					

Constraints to utilisation of HIV/AIDS prevention techniques

Kindly indicate which of the factors hinder your utilisation of HIV/AIDS prevention techniques.

Constraints	Severity of Constraint		
	Severe	Mild	Not applicable
Culture			
Religion			

Willingness to pay			
Taboo and Superstition			
Level of technicality involved			
Non-availability of materials			

Utilisation of HIV/AIDS prevention techniques

Kindly indicate which of the following HIV/AIDS Prevention Techniques you utilise

HIV/AIDS Prevention Techniques	Yes	No
Avoid sharing of spouse with others		
Avoiding pre-marital sexes		
Usage of condom during sex with multiple partners		
Usage of new syringes and needles for injection.		
Usage of new razor blade during barbering.		
Medical check-up at hospital for HIV status		
Usage of new needles for tattooing.		

Screening of blood before transfusion.		
Use of personal blade / razor for cutting my nails.		
Avoiding the use of commercial nail cutters common tools for cutting nails.		
Avoid consulting traditional medical practitioners.		

Constraints	**Ogun State**		**Oyo State**		**Across the States**		**Total**	**Ranks**
	Frequency		Frequency		Frequency			
	Mild	Severe	Mild	Severe	Mild	Severe		
Marriage cultural practices	115	17	231	35	346	52	398	1st
Religion	57	270	35	11	92	281	373	2nd
Willingness to pay for HIV/AIDS prevention techniques	15	2	213	73	228	75	303	3rd
Taboo and Superstition	58	00	53	60	111	60	171	4th
Level of technicality involved	109	26	22	4	131	30	161	5th
Non-availability	13	00	100	16	113	16	129	6th

of materials								

Source: Field survey, 2010

Constraints	**Ogun State**		**Oyo State**		**Across the States**		**Total**	**Ranks**
	Frequency		Frequency		Frequency			
	Mild	Severe	Mild	Severe	Mild	Severe		
Marriage cultural practices	115	17	231	35	346	52	398	1st
Religion	57	270	35	11	92	281	373	2nd
Willingness to pay for HIV/AIDS prevention techniques	15	2	213	73	228	75	303	3rd
Taboo and Superstition	58	00	53	60	111	60	171	4th
Level of technicality involved	109	26	22	4	131	30	161	5th
Non-availability of materials	13	00	100	16	113	16	129	6th

Constraints	**Ogun State**		**Oyo State**		**Across the states**	
	Weighted score	Ranks	Weighted score	Ranks	Weighted score	Ranks
Marriage cultural practices	132	3rd	266	2nd	398	1st
Religion	327	1st	46	5th	373	2nd
Willingness to pay for HIV/AIDS	17	5th	286	1st	303	3rd

prevention techniques						
Taboo and Superstition	58	4th	113	4th	171	4th
Level of technicality involved	135	2nd	26	6th	161	5th
Non-availability of materials	13	6th	116	3rd	129	6th

Source: Field survey, 2010

Constraints	Ogun State				Oyo State				Across the states			
	Frequency				Frequency				Frequency			
	Mild	Severe	Total	Ranks	Mild	Severe	Total	Ranks	Mild	Severe	Total	Ranks
Marriage cultural practices	115	17	132	3rd	231	35	266	2nd	346	52	398	1st
Religion	57	270	327	1st	35	11	46	5th	92	281	373	2nd
Willingness to pay for HIV/AIDS prevention techniques	15	2	17	5th	213	73	286	1st	228	75	303	3rd
Taboo and	58	00	58	4th	53	60	113	4th	111	60	171	4th

Superstition Level of technicality involved	109	26	135	2nd	22	4	26	6th	131	30	161	5th
Non-availability of materials	13	00	13	6th	100	16	116	3rd	113	16	129	6th

Table 5.13 Chi-square analysis of respondents' personal characteristics and utilisation of HIV/AIDS prevention techniques

Variables	Df	Ogun state		Oyo state		Across the States	
		χ^2	p-value	χ^2	p-value	χ^2	p-value
Age	5	15.66	0.000*	18.82	0.056	14.59	0.006*
Level of education	5	17.25	0.000*	15.55	0.001*	30.11	0.001*
Sex	1	0.010	0.620	0.25	0.550	1.22	0.750
Marital status	1	0.45	0.570	0.62	0.260	0.56	0.820
Level of understanding Hausa language	2	52.55	0.000*	36.66	0.000	78.78	0.002*
Level of understanding Fulfulde language	2	12.01	0.000*	10.42	0.000*	9.68	0.003*
Level of understanding English language	2	15.9	0.000*	13.30	0.000*	14.20	0.000*
Level of understanding Yoruba language	2	32.42	0.000*	24.44	0.000*	45.53	0.000*

*Significant at 0.05

Source: Field survey, 2010

Categories	Ogun state n = 94		Oyo state n = 236		Across the states n = 330	
	F	%	F	%	F	%
High status	80	85.1	126	53.4	206	62.4
Low status	14	14.9	110	46.6	124	37.6
Total	94	100	236	100	330	100
Mean score	77.0					

Table 5.5: Categorisation of respondents based on knowledge of HIV/AIDS prevention techniques

Categories	Ogun State n =94		Oyo State n=236		Across the states n= 330	
	F	%	F	%	F	%
Low knowledge	37	39.4	112	47.5	145	43.9
High knowledge	57	60.6	124	52.5	185	56.1
Mean score	15.3		13.5		14.0	
Standard deviation	± 2.0		± 2.3		± 2.3	

Field survey, 2010

Table 5.9: Categorisation of respondents based on attitude towards utilisation of HIV/AIDS prevention techniques

Categories	Ogun State n =94		Oyo State n=236		Across the states n= 330	
	F	%	F	%	F	%
Unfavourable	14	14.9	128	54.2	142	43.0
Favourable	80	85.1	108	45.8	182	57.0
Mean score	62.1		52.9		55.6	
Standard deviation	4.0		10.2		9.8	

Field survey, 2010

The dependent variable for this study is utilisation of HIV/AIDS prevention techniques Utilisation of HIVAIDS prevention techniques was measured as utilisation score at interval level. There are 11 utilisation tests items, the expected minimum and maximum scores were 0 and 11.0 respectively. In the study, the observed minimum and maximum scores were 2.0 and 11.0 respectively. Respondents were asked to indicate which of the HIV/AIDS prevention techniques they make use of. The score was later categorised into two (high and low) levels on the basis of above and below the mean classification criterion. Respondents who scored between 2 and 7.6 were categorised as having low utilisation, while those who had between 7.7 and 11.0 were categorised as having high utilization of HIV/AIDS prevention techniques.