Factors influencing the use of modern contraceptives among Somali women pastoralist and their partners in Garissa, Wajir, and Mandera Counties in Kenya

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by

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Abbreviations

ANC	Antenatal Care
CHEW	Health Extension Workers
CIDP	County Integrated Development Plan
FGM/C	Female Genital Mutilation/Cutting
FP	Family Planning
FP2030	Family Planning 2030
GPD	Gross Domestic Product
HEW	Health Extension workers.
VHT	Village Health Team
HCW	Health care Workers
IUD	Intrauterine devices
KDHS	Kenya Demographic Health Survey
KHHES	Kenya Household and Health Expenditure and Utilization Survey
LMICs	Low- and middle- income countries
MMR	Maternal Mortality Ratio
MOH	Ministry of Health
SDG	Sustainable Development Goals
SRHR	Sexual Reproductive Health Rights
UHC	Universal Health Coverage
UNFPA	United Nations Population Fund
WHO	World Health Organization

Glossary

Access: is the degree of fit between a user of services and a service provided; the better the fit, the better the access (1). Access is a complex concept that requires several dimensions to be assessed. In terms of availability, utilization and outcomes, but none of these dimensions is enough to stand on its own (2).

Contraceptives: any drug, devices, or surgery intended to prevent pregnancies. Contraceptives have a variety of forms and methods (3). Hormonal methods (oral pills or implants, patches or vaginal rings) intrauterine devices (IUDs), emergency contraception, condom use and lactational Amenorrhea method are methods of contraceptives (4).

Modern Contraceptives: "A product or medical procedure that interferes with reproduction from acts of sexual intercourse" (5)

Contraceptive prevalence: "Percentage of women who use any contraceptive method" (6).

Family Planning: Consideration of a person's desired number of children, including the option of having no children, and the age at which they wish to have them. This is achieved through the use of contraceptive methods and the treatment of infertility conditions (7).

North Eastern Province (NEP): One of the former provinces in Kenya, currently made up of the three newly devolved counties of Garissa, Wajir, and Mandera (8).

Pastoralism: The rearing of livestock, like cattle, goats, and sheep, which often involves moving from one place to another. The frequency and duration of these movements can vary, from daily relocations to being away from home for several days, depending on the season, in pursuit of water and pasture for the livestock (9).

Pastoralists: These are communities who practice pastoralism, rearing and caring for livestock, as their primary means of livelihood. Their lifestyle often involves moving with their herds in search of water and pasture (10).

Reproductive health: "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity, in all matters relating to the reproductive system and to its functions and processes. It implies that people are able to have a satisfying and safe sex life and that they have the capability to reproduce and the freedom to decide if, when and how often to do so"(11). Modern contraceptives are a crucial component of reproductive health.

Unmet need for family planning: "Proportion of women who are: not pregnant and not postpartum amenorrhoeic and are considered fecund and want to postpone their next birth for 2 or more years or stop childbearing altogether, but are not using a contraceptive method, have a mistimed or unwanted current pregnancy, or are postpartum amenorrhoeic and their last birth in the last 2 years was mistimed or unwanted" (6).

Women of Reproductive Age: Women aged between 15 years to 49 years (12).

Abstract

Background More than half of Kenya's land mass is made up of arid or semi-arid regions. In these areas pastoralism is practiced by the Somali, Maasai, Turkana, Pokot, Samburu and Borana communities. The Somali are predominantly Muslims and reside in the North East part of Kenya, specifically in Garissa, Wajir, and Mandera counties. These counties have a high total fertility rate of 8 to 4.4 births per 1000 women, a high maternal mortality rate, ranging from 646 to 3,794 per 100,000 live births, and very low prevalence of modern contraceptive of between 2% to 11%.

Methods A literature review study was performed, using the social-ecological model to analyse factors influencing use of modern contraceptives among Somali women pastoralists and their partners in Garissa, Wajir, and Mandera Counties in Kenya.

Results The low uptake of modern contraceptives among Somali women is influenced by socio-cultural norms and practices, such as polygamy, desire for large families and fear of side effects. The religious belief that modern contraceptives are not allowed in Islam, also hampers their use. Limited access to healthcare, resulting from a scarcity of facilities, coupled with the insufficient capacity among health workers to meet the reproductive health needs of the pastoralists, poses a significant barrier.

Conclusions and Recommendations: Socio-cultural norms, religious beliefs, and limited access to health services are crucial factors influencing the use of modern contraceptives among Somali pastoralists. Interventions to reduce unmet needs should be holistic, involving community and religious leaders, and should improve access to modern contraceptives.

Key words contraceptives, family planning, reproductive health, pastoralist, Kenya

Word count 11,952

Introduction

I am a public health professional working in public health program designing, implementation, and management, after doing a Bachelor of Science in Public health. Prior to this I worked as a laboratory technologist in a Health Centre in Garissa, Kenya. Through my work in the last twelve years, within the Somali community context, as a health facility-based staff and program manager, I have a personal connection to the current public health issues affecting where the Somali community dominates.

This research thesis aims to explore the factors influencing the use of modern contraceptives among female pastoralists in Garissa, Wajir, and Mandera counties in Kenya. These three counties are Somali-dominated counties, being a Somali native from the region gave me first-hand knowledge of the lifestyle, cultural practices, and the low uptake of modern contraceptives in my community.

The ongoing climatic changes, marked by frequent drought, negatively affect keeping livestock, which are the primary livelihoods of pastoralists. The culture of living remote locations and the practice of large family size, is tradition among the Somalis and is increasingly putting pressure on pastoralist families. Modern Contraceptive use, as part of sexual and reproductive health rights, is an important service for pastoralists to enable users to have the number of children they want when they want and prevent high-risk pregnancies.

From this research, I would like to analyse and consolidate all factors that influence use of modern contraceptive, among Somali pastoralists in Kenya and identify promising interventions and practices that have led to increased use of modern contraceptives in similar contexts. Finally, I would like to give recommendations to policymakers in the government and partner organizations, that can be implemented to influence the use of modern contraceptives among pastoralists.

This thesis is organized into six chapters. Chapter One presents background information on Kenya and the counties where pastoralists dwell. In Chapter Two, the problem statement, justification, and objectives are presented. Chapter Three outlines the methodology used for the study and the conceptual framework employed. Chapter Four presents the results and findings from the literature review on the topic, along with promising interventions from similar contexts. Chapter Five provides a discussion of the findings and finally, in Chapter Six conclusion and recommendations from the study are presented.

Chapter One Background

1.1. Geography

"Kenya has 580,895 sq. km land mass with a population density of 82 people" (13), surrounded by a number of nations: Somalia, Ethiopia, South Sudan, Uganda, and Tanzania. "Over 70% of Kenya's land mass is made up of arid or semi-arid regions where pastoralism is practiced, which is home to over 60% of the country's livestock herd" (14). Among the 47 counties in Kenya, there are nine counties West Pokot, Turkana, Kajiado, Narok, Samburu, Marsabit, Wajir, Garissa, and Mandera, which majority of residents are pastoralists as shown in Figure 1 below. The Northern Eastern Province (NEP), which is now divided into Garissa, Wajir, and Mandera counties, has a high pastoralist population of about 2.5M Somali, with a land area of 128,000 square kilometres (13).

Figure 1: Map of Kenya with counties where Pastoralist Counties (Author).

1.2. Demography Population

It is estimated that Africa is home to approximately 50 million pastoralists, making them one of the most challenging population to reach for health service delivery (15). Kenya has a population of 53M as per World bank 2021 (16). Out of the 53 million people living in Kenya, it is estimated that 9 million are pastoralists(17)(18). The Maasai, Turkana, Pokot, Samburu, Borana and Somali are the main pastoralist in Kenya. The ethnic pastoralist population number from Kenya's population and housing census 2019 has revealed; The Maasai 1.2M, Turkana 1M, Pokot 0.8M, Samburu 0.3M, Borana 0.3M, and Somali 2.8M. It is estimated that 97% of the population living in Garissa, Wajir and Mandera counties are Muslims, (19).

According to Kenya's population pyramid 2023 by age and sex (20), shown in Figure 2 below, women of reproductive age 15 to 49 years account for 26% (1.45 million) of the Kenyan population. While men above 15 years account for 31% of the population (17 million). The country similarly has a young age group of 10 to 14 years, accounting for 13% (7 million), which will soon join the reproductive age group.

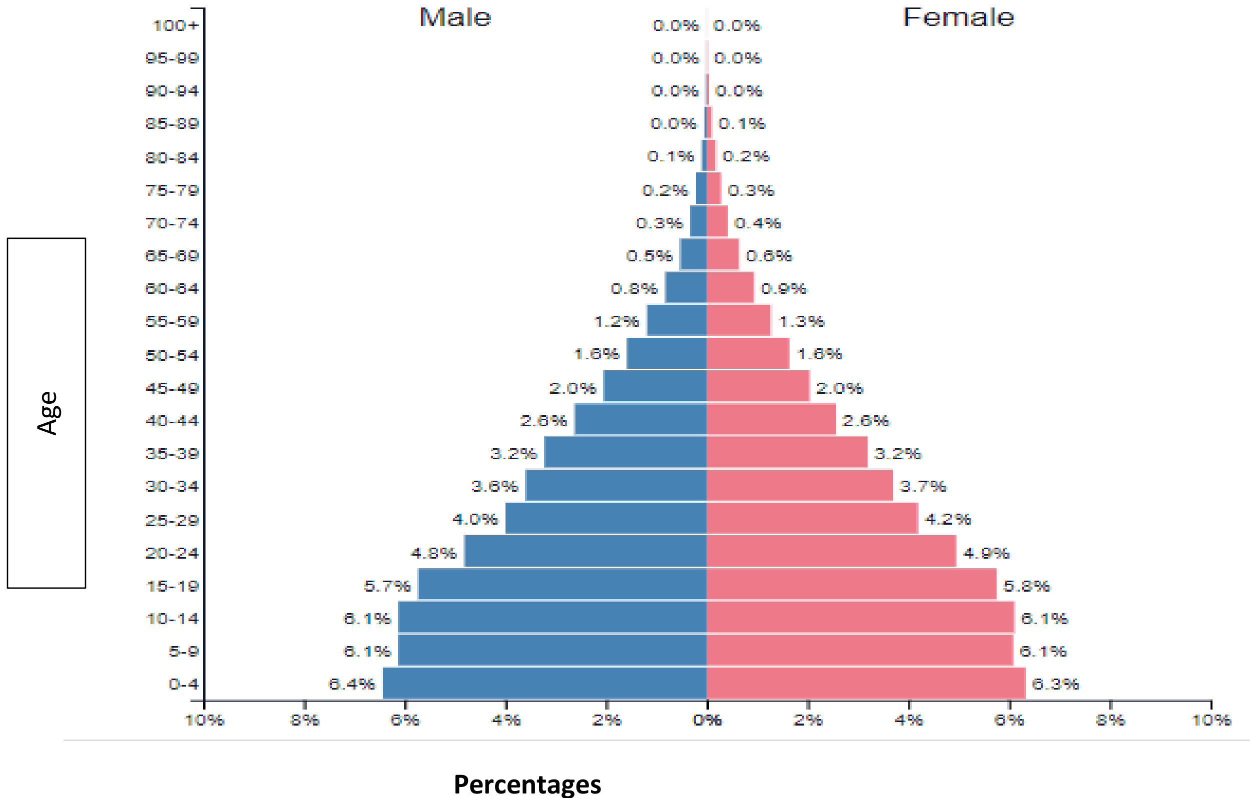

Figure 2 Kenya's demographic pyramid by age and sex

1.3. Economy

Agriculture is the backbone of the economy, generating roughly a third of Kenya's Gross Domestic Product (GDP) (21). The agriculture sector employs a significant Kenyan population mainly the rural population.

The Kenyan economy has risen over the past few years and has been backed by continuous public infrastructure projects, robust public and private sector investment, and adequate economic and fiscal policies (22). The COVID-19 pandemic shock impacted the economy hard in 2020, causing disruptions in travel, tourism, and urban services. Fortunately, the agricultural industry maintained its resilience, assisting in halting the decline in GDP. The economy experienced a robust comeback in 2021; other industries, including tourism, continued to experience pressure. Although economic forecasting is generally positive, there is a high level of uncertainty due to various factors, notably the impact of global commodity price changes as an importer of fuel, wheat, and fertilizer due to the conflict in Ukraine (23). Pastoralists keep livestock valued at more than $1 billion which they rely on for their food, health, and wealth (17) (18).

Pastoralism has a significant economic impact on Kenya through both traditional and non-traditional pastoral values, with traditional values like livestock and items related to it still making up most of the pastoral economy. Honey, gum resin, firewood, fishing and tourism are a few examples of non-traditional

pastoral enterprises, that are increasingly important to the pastoralists' ways of livelihood (24). Pastoralism practices are the main economic backbone for Garissa, Wajir, and Mandera counties (25), (26), (27), (28), (29), (30). Unfortunately, the changes in climate conditions have impacted pastoralists by limiting the availability of water and pasture. This has compelled these communities to invest in water storage and fodder purchases livestock, forcing a lifestyle change away from exclusive livestock dependency as a coping mechanism (31). Pastoralist-dominated counties have the highest level of population below the poverty line (32), as illustrated in Table 1 below: Poverty negatively influences the ability to seek modern contraceptives needed.

Table 1: **Percentage of individuals below poverty line in Pastoralist counties** (32)

	County	Percentage of people below poverty line per county
1	Wajir	84
2	Garissa	59
3	Mandera	86
4	Turkana	88
4	Samburu	71
6	Marsabit	76
7	Kajiado	38
8	Narok	41
9	West Pokot	66

1.4. Health Systems

Public health Financing and service delivery arrangements changed in 2013, when the country switched from a centralized to a devolved government system of two-tier administration; national government and 47 counties. The national government retained policy formulation, regulatory functions, and national referral services under this decentralized governance model. County-run health-care delivery systems included community services, dispensaries, health facilities, and county referral services (33). Healthcare services are provided through a six-tier system, with each ascending level offering an increasing range of health services. Starting at Level 1, community health services, Level 2, Dispensaries, Level 3, Health centres, level 4, Primary hospitals, level 5, Secondary hospitals, and finally level 6, tertiary hospitals (34).

The proportion of health care financing, provided by the Kenyan government in the national budget, remains below the Abuja Declaration's recommendation of 15% and is standing at 11.1 percent in the fiscal year 2020/21 (35). According to the Kenya Household and Health Expenditure and Utilization Survey (KHHES) 2018, unmet health needs are more in rural areas than in urban settings, additionally expensive medication cost one of the leading barriers to access to health care (36).

Kenya’s maternal mortality ratio (MMR) stands at 530 per 100,000 live births (37), and the Kenya health policy 2014 to 2030 targets the maternal mortality ratio to be reduced to 113 per 100,000 births (38).

Pastoralist majority counties have the highest indicators of MMR as shown in table 2 below (39), (40), (41), (42), (43).

Table 2: Maternal Mortality rate in Counties with Pastoralists

	County	MMR per 100,000
1	Wajir	1,687
2	Garissa	646
3	Mandera	3795
4	Turkana	1,594
4	Samburu	472
6	Marsabit	1,127
7	Kajiado	488
8	Narok	434
9	West Pokot	434

Mandera, Wajir, and Garissa Counties have the lowest proportions of women who had four or more Antenatal Care (ANC) visits for their last live birth, at 40%, 44%, and 37% and very low proportions of live births delivered by a skilled provider at; 55%, 57%, and 68% respectively among the 47 counties in Kenya (6). Kenya's Universal Health Coverage (UHC) service coverage index stands at 56% as of 2019 (44). UHC aims to ensure that all people and communities have access to the health services they require, without facing financial hardship and advance toward reaching their Sustainable development goals (SDGs) for improving their health. Despite Kenya being on track to meet some of the SDG indicators targets, still some are off-track in achieving targets; SDG 3.7 focuses on ensuring universal access to sexual and reproductive health-care services, including family planning (45).

Chapter Two Problem statement, justification, and objectives

2.1. Problem Statement

Sexual and reproductive health and rights (SRHR) are critical to people's health and survival, economic development, and well-being. Studies have shown enormous advantages in investing in sexual and reproductive health (46). Modern Contraceptive are a component of SRHR, and categorised into hormonal contraceptives which include oral contraceptives, intrauterine devices (IUD), implants, and injectables. Nonhormonal methods include condoms, Copper-bearing intrauterine devices (IUD), male and female sterilization(12), (47). Traditional contraceptive methods are none medical or procedure approaches used to prevent pregnancy including lactational amenorrhea, withdrawal, and Standard days (48).

The socioeconomic benefits of accessing modern contraceptive and using it, are immense, as it allows adolescents to prevent unintended pregnancy and finish their education, which is critical to achieving gender equality (49). The use of modern contraceptives in lowering maternal morbidity and mortality. Additionally, delaying pregnancies by young girls, due to the risk of getting maternal complications, as a result of early childbearing, and preventing pregnancies in older women, who also have a risk of maternal complications, are both important health benefits of contraceptive use (7), (46), (50), (51).

As of 2019, out of the globally 1.9 billion women within the reproductive age bracket, over 1.1 billion require family planning services. Of these, only 842 million are utilizing contraceptive methods, but there remains a considerable group of 270 million, who have a yet unfulfilled need for contraceptives (12). In Sub-Saharan Africa 21% of women, who have an unmet need for contraceptives in 2017 (52), similarly, unintended pregnancy is a major public health concern, especially among adolescent girls and young women (53), with an estimated 91 per 1,000 among women of reproductive age (54).

An induced abortion study in Kenya estimated 464,000 induced abortions occurred in 2012, which translated into an abortion rate of 48 per 1,000 among women aged of reproductive age and an abortion ratio of 30 per 100 live births. The study further revealed that about 120,000 women received care for complications of induced abortion in healthcare facilities and almost half (49 %) of all pregnancies in Kenya were unintended, with 41% of unintended pregnancies ending in an abortion. Unfortunate the study did not reveal the data from pastoralist communities (55). Abortion is prohibited in Kenya as per the Constitution of Kenya 2010 (33).

Kenya's national total fertility rate (TFR) is 3.4 births per 1,000 women (6), Counties with pastoralists majority have a higher TFR than the national average: Mandera 8, Wajir 6.7, Garissa 4.4, Turkana 6.4, Marsabit 7, Narok 6.6, and Kajiado 3.3 births per 1000 women (56), which is attributed to the community's low utilization of modern contraceptives (57). The country's national prevalence of modern contraceptive use among married women, stands at 57 percent as per Kenya Demographic Health Survey (KDHS) 2022. Counties with higher pastoralists have a very low prevalence (6) as in Table 3 below, with Narok and Kajiado having a higher prevalence due to urbanization. The prevalence rate of modern contraceptive use among unmarried Kenyans is roughly 23 percent (58). There is no available data on the prevalence rate of modern contraceptive uptake among unmarried pastoralist communities in Kenya.

Table 3: **Prevalence of any Modern Contraceptive method among counties with pastoralist as per KDHS 2022 (6)**.

	County	Prevalence of modern contraceptive in Percent
1	Wajir	11
2	Garissa	3
3	Mandera	2
4	Turkana	30.7
5	Samburu	25.4
6	Marsabit	5.6
7	Kajiado	57.3
8	Narok	52.3
9	West Pokot	23.2

Due to cultural beliefs, women among pastoralists in the North Eastern region of Kenya, did not use reproductive health services, where only men are providers (59). Additionally, married women's reproductive and sexual health (RSH) choices are greatly influenced by their husbands and religious beliefs against modern contraceptives use (60).

The KDHS 2014 report disclosed that men between the age of 15–54 years often relay their partners' contraceptive methods, rather than using male methods. Other factors associated with the use of modern contraceptives among men include educational level, higher socio-economic status, number of children one has, marital status, marriage type, and place of residence (urban or rural) (55), however the study did not reveal findings among pastoralist men in Kenya.

Pastoralist communities face complex barriers to accessing the healthcare they need (61), (62). Rural areas where pastoralists live, have comparatively few healthcare facilities and they need to travel a long distance for treatment (63).

The Kenyan government has been working to meet the demand for contraceptives, a key step in helping families to achieve the desired number of children and to reduce morbidity and mortality related to reproductive health (64). In the last three decades, there has been a significant improvement nationally, in the use and reduction of unmet need for modern contraceptives among married women. The Kenya national contraceptives utilization increased from 27 percent in 1993 to 57 percent in 2022, and the percentage of unmet needs for modern contraceptives declined from 35 percent in 1993 to 14 percent in 2022. Counties with pastoralists had consistently the lowest prevalence rate on the use of modern contraceptives (6) (65). This leads one to be puzzled about the persistent factors influencing the low use and utilization of contraceptives among the Somali pastoralists in Garissa, Wajir, and Mandera Kenya.

2.2. Justification

Despite the benefits of modern contraceptives in enhancing maternal and child health, a significant proportion of Kenyan women of reproductive age and men do not access and use them, with notable regional variations. Prioritizing marginalized communities as in the pledge to "leave no one behind" is one of the goals of the 2030 Agenda and is a commitment by countries to prioritize the needs of these people to realize SDGs (66). This research will focus on the Somali pastoralists in the three counties Garissa, Wajir,

and Mandera, as they have the lowest prevalence of modern contraceptive uptake and consistently (6),(65), have a higher TFR (56), experience a rapid population growth (67) (68), and have higher MMR than the national average (39).

Factors influencing the use of modern contraceptives among the Somali pastoralists in Garissa, Wajir, and Mandera have not been thoroughly studied. Establishing and consolidating all factors influencing, is critical to guide evidence-based effective interventions, needed to reduce unmet needs among the Somali pastoralists. Where limited data from the Somali exists, this study will utilize findings from other pastoralists in Kenya and in similar settings. This research will also contribute to the existing body of knowledge among all pastoralists in Kenya. Additionally, I will identify promising intervention practices used in similar contexts, to be used to increase the use of modern contraceptives and will inform policy to address unmet needs of modern contraceptives among pastoralists.

a. Overall objective:

To explore the factors influencing the use of modern contraceptives among women pastoralists in Garissa, Wajir, and Mandera Kenya and to inform policymakers with recommendations to reduce the unmet need for modern contraceptives.

b. Specific objectives

1. To explore individual, socio- cultural, and socio-economic factors influencing the use of modern contraceptives among women pastoralist and their partners in Garissa, Wajir, and Mandera Kenya

2. To analyse health system factors, affecting use of modern contraceptive services, among Pastoralists in Garissa, Wajir, and Mandera Kenya.

3. To identify promising interventions and practices from similar setting that can contribute to the reduction of unmet needs for modern contraceptives among Pastoralists in Garissa, Wajir, and Mandera

4. To make recommendations to policymakers and implementers on practices that can help to contribute to the reduction of unmet needs for modern contraceptives among Pastoralists.

Chapter Three: Methodology

3.1 Study Design

This study used an extensive literature review drawing from various sources, including online literature, reports, and published literature to identify factors influencing use of modern contraceptives among Somali pastoralists in Garissa, Wajir, and Mandera, Kenya. Additionally, a critical analysis of promising practices was done in a similar context to identify best interventions and practices, that can be implemented in Garissa, Wajir, and Mandera, to decrease unmet needs of modern contraceptives.

3.2 Search Strategy

In this study, various databases were searched between February 2023 and July 2023, to gather information on the use of modern contraceptives among pastoralists women of reproductive age and men in Kenya and in similar communities' contexts. To find relevant articles, relevant search terms were combined using Boolean operators. These search terms included single or combinations of phrases: use of modern contraceptives, child spacing, family planning, and combining them with barrier factors such as religious beliefs, cultural beliefs, the need to get more children, health workers attitude, literacy, access to reproductive health services and the geographical scope of Kenya and neighbouring countries Ethiopia and Somalia as shown in table 4 below.

Google Scholar, Springer Link, the Vrije Universiteit library's online library, Research Gate, and PubMed were used to find published articles. The study also used google to access publicly available information and reports from the official websites of the Ministry of Health Kenya, The World Health organization (WHO), the United Nations Population Fund (UNFPA), Guttmacher Institute, and other organizations for grey literature, which include policies, situation reports from Kenya and other similar contexts.

Table 5: keywords and searching strategies: Horizontally connected using "and"

	Problem/issues		**Factors related to terms.** **(From frameworks and others)**		**Geographical**
OR	Pastoralists Somali/Samburu/Maasai/Turkana/ Borana/Pokot use/access/utilization of modern contraceptives, Family planning, Unintended pregnancy "Approaches to increase uptake of modern contraceptives/family planning, "modern contraceptive interventions", "evidence based intervention for family planning" Kenya	**and**	Socio-cultural norms and practices, Stigma, Number of children wanted. FGM/C Child marriage, teenage pregnancy, Family, peers Age, Knowledge, sex, marital status, beliefs, Perception and attitude on contraceptives, Education Access to reproductive health services, Health care workers, cost Policies on RH/FP Women, men	**and**	Kenya Ethiopia Somalia LMIC

3.3 Inclusion and exclusion Criteria

This study used utilized published literature and reports done from 2010 to 2023 and only in English. This also reviewed reports, studies, and literature, on contraceptive interventions, done in similar contexts and in pastoralist communities. The study did not include studies in any other language apart from English. Articles with only abstract access only, possible due to source restrictions, were excluded from the study as well.

3.4 Conceptional Framework

This study employed the social-ecological model (SEM) originally designed by McLeroy, et al. in 1988 (69) shown in Figure 3 below, to aid the analysis of the several factors influencing the use of modern contraceptives among pastoral communities. The SEM model was chosen over other frameworks due to its comprehensive approach to the contextual determinants of five different layers, influencing the use of modern contraceptives: individual factors as a user, interpersonal factors, community factors which are socio-cultural factors as well as supply induced factors which are institutional and public policy factors. The use of the SEM model aligns with the study's objectives and is a widely used framework for analysing the use of contraceptives and studying complex health behaviour issues in various contexts (70),(71,72),(73). The SEM level subsequence's follow each other in a systematic manner; this makes it easier to understand the interactions between each level and within factors, which makes the model useful for this study.

The study also reviewed three other frameworks, first the Conceptual framework of quality of care and utilization (74), which has input factors composed of elements, related to Structural, technical, and personal. This framework has not been selected, as it was considered that these factors were less relevant for this study, due to the fact that some of the modern contraceptive methods can be dispensed with minimum capacity and structure in the health system. The second framework reviewed was Andersen's Behavioural Model (75) for health service utilization. This was not considered as well as the framework determines the utilization of health services not used as required for the study. The third framework the study reviewed was Levesque et al, access to health services framework (76), this was not chosen as well, due to a limitation found on overlapping sections in the determinant aspects of access to contraceptives between the health systems, individual and social cultural factors.

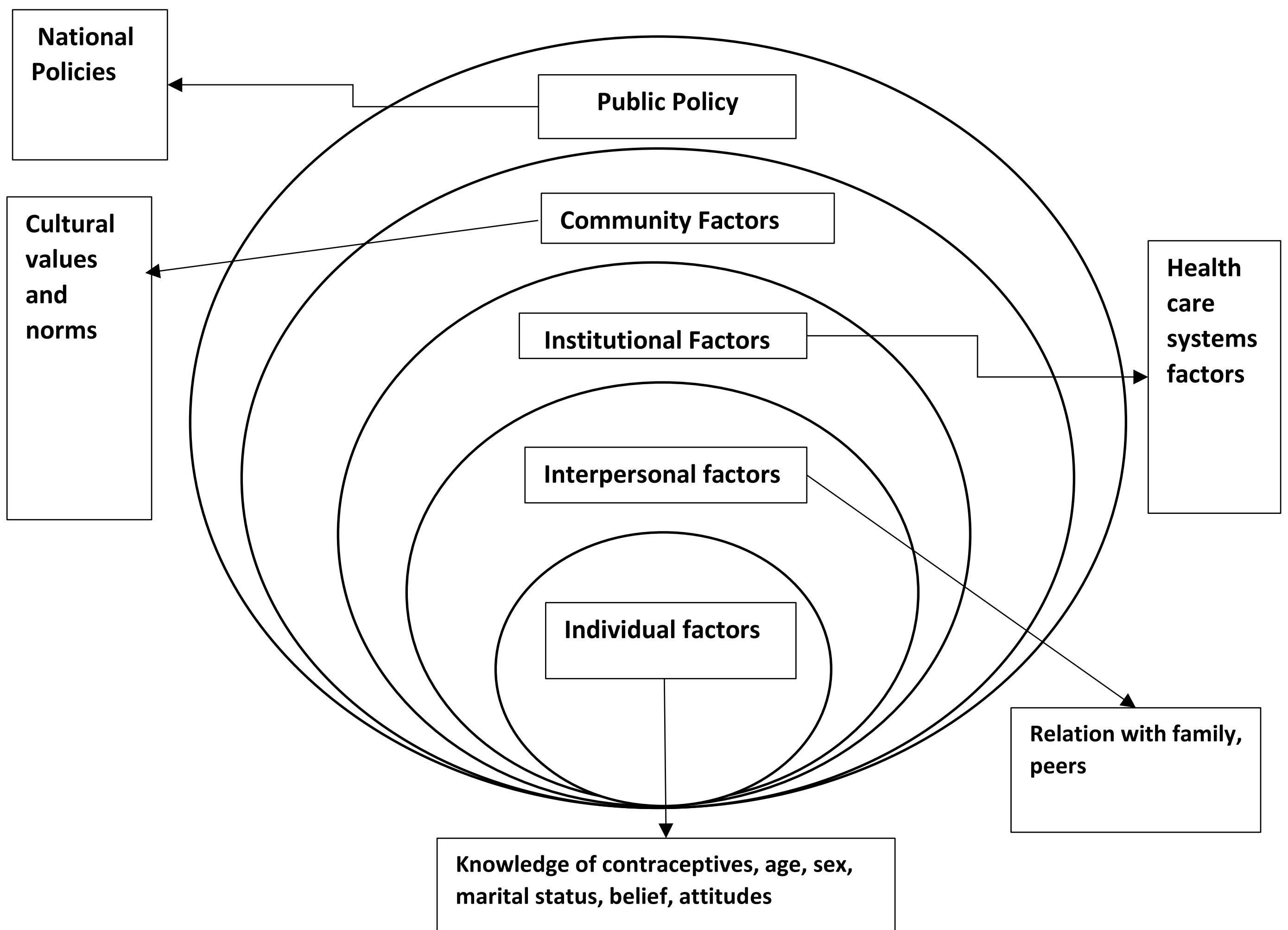

Figure 3: Socio-Ecological model showing factors influencing the use of modern contraceptives (69).

3.4 Study limitations

The study was only limited to a literature review, implementing primary data collection or mixed method study could have presented expanded information on factors influencing modern contraceptive use among the Somali pastoralists in Garissa, Wajir, and Mandera, Kenya.

It was not possible to include all Kenyan pastoralist communities in the scope of this study. This study focused on only one community. Despite this limitation, the study used literature from other pastoralists to enrich any important finding.

Chapter 4: Study Results/Findings

In this section, factors influencing, the use of modern contraceptives, among pastoralist in Kenya, will be examined, using the social-ecological model (SEM) (69). The study systematically begins at the core of the model, which focuses on the individual factors influencing the use of contraceptives and ends with the topic on the public policy level in the framework.

4.1.1 Individual factors

These are the core of the model and have direct influence on behaviour and decisions of individuals of contraceptive use. These include **personal knowledge of contraceptives, education, marital status beliefs and attitudes**.

Personal Knowledge on Modern Contraceptives

Research has indicated that pastoralists in low and middle income countries have a low awareness of modern contraceptives (77). Studies among Somali pastoralist communities in Wajir and Mandera revealed that individual knowledge of contraceptives positively influences the use of modern contraceptives (78). A Study among pastoralists in North Eastern has shown, that women are aware of modern contraceptive methods, through health care facilities they visit, but the women did not explain their personal use (60).

A study, from the Afar pastoralist community in Ethiopia, has shown that married women have the knowledge and are aware of where to find modern contraceptives from health centres, but are not aware they can find it in pharmacies(79). Similarly, a study from the Somali pastoralists in Ethiopia it revealed that the majority of men, not only lack knowledge about modern contraceptives, but also disapprove its use by their wives (80).

Education level, Marital Status, age, and Sex.

Education allows one to comprehend health information, make timely decisions as factors influencing modern contraceptive uptake. Studies among married Somali women, living in Kampala, have shown that, women who have no education have a low degree of contraceptive awareness and are not properly informed on its benefits and unlikely to use modern contraceptives (81). Education improves pastoralist women's autonomy and self-reliance when making decisions to access healthcare services, and improvements in female education leads to women being more likely to seek and use the reproductive health services they need (77). Studies in Wajir revealed that women who have a secondary education level have a higher prevalence of modern contraceptive use than those who have a lower educational level (82).

Evidence from studies in a similar context, among pastoralist communities in Ethiopia, revealed that the ability to read and write, positively influenced contraceptive use for women of a reproductive age group. Women who can read and write are more than twice as likely to use contraceptives than women who are not able to read and write (83) (84). Studies from the Samburu community revealed that: lack of education has attributed to poor access to reproductive health services, with women preferring to deliver at home; this contributes to missed opportunities to access and utilize reproductive health services needed, including modern contraceptives from the health care facilities on delivery (85).

In the KDHS 2022, the national prevalence of married women without education and currently using any modern contraceptive method is 20.5%, while the national prevalence of married women with primary or secondary education is 60% (6). The survey did not account for the relationship between educational attainment and the use of modern contraceptives in pastoralist communities.

Kenya’s literacy rate per county, The highest rates of illiteracy per country in Kenya are found in Kenya's pastoralist-dominated counties (32) with the Somali pastoralists counties having among the highest, as illustrated in Table 5 below: Lack of education hinders access to information and awareness of contraceptives.

Table 5: **Proposition of population with no education in Garissa, Wajir and Mandera county** (32)

	County	Percentage of population with no education per county
1	Wajir	76
2	Garissa	74
3	Mandera	70
4	Turkana	82
5	Samburu	68
6	Marsabit	68
7	Narok	38
8	Kajiado	31
9	West Pokot	55

A study in a similar context of high fertility regions of Somali, Oromia, and Afar regions of Ethiopia revealed that women who marry before the age of 18 have less autonomy in deciding to use contraceptives, compared to those who marry at 18 years or older (84)**.**

Personal Beliefs and attitudes on Contraceptives

Studies among Somali pastoralist communities in Wajir and Mandera and religious believes directly influences women and men to use contraceptives, as it is believed to be against Islamic teaching and considered as “contrary to God” and refer contraceptives as “foreign/western ideology” (78), (82). Misinterpretation of Islamic teaching has shown to be a significant barrier influencing modern contraceptive uptake among pastoralist communities, despite having diverse opinions among Muslim scholars (86), (87). As in patriarchal societies, men in these counties believe that family planning is only for women and men have a preference for large family size, thus do not accept it (87), (88). Men in Wajir do accommodate the concept of family planning within the framework of child spacing, with a focus on only natural methods, like lactational amenorrhea, withdrawal, calendar, and abstinence. This is informed by the belief that child spacing is recommended in Somali culture and within Islam (87).

According to a study, involving Islamic Somali religious leaders, contraceptives are only permitted in relation to birth spacing, when they are to promote the health of the mother and child. The phrase "birth spacing" is preferred over "family planning" when providing Muslim women with contraceptive counselling, but the religious leaders banned the use of contraceptives to limit number children and use of condoms as it is believed that such practices would likely promote sexual activity outside the marriage (89). Studies from similar community in Somalia revealed, the youth have preference for “child spacing” rather than family planning as they wish to combine career and family life (90).

Myths and misconceptions among pastoralist youth that contraceptives use causes infertility in women, while condoms cause cancer in males, act as barriers towards sexual reproductive health utilization among the youth (91). There is also a personal feeling of fear from contraceptive use due to side effects, fears of

infertility, bleeding, and infection, that have been widely spread among pastoralist communities in Kenya (78)(92). Among pastoralists, the men in Wajir and youth in Narok do have the belief using modern contraceptives causes ill health and secondary infertility, an information gotten from different sources (87), (93).

Young women among pastoralists have a fear that their partners/husbands will negatively influence their use of contraceptives. Among the married girls in the Maasai pastoralist, the use of contraceptives is very low, due to the preference to hide this from their partners, they prefer to use injectable contraceptives methods so that they are not seen and this leads to low utilization (94).

Studies did not examine uses and utilization factors influencing the use of male contraceptives among pastoralist communities, study findings from Western, Coast, and Central regions of Kenya revealed that men do have the belief that condom use harms their reproductive organ and leads to not getting aroused and feeling pain after using. This has negatively influenced contraceptive use among men: and also negatively affects the women's ability to ask for its use (95).

4.1.2 Interpersonal Factors

This is the second layer of the model and refers to the interaction with others that influences the use of contraceptives. These interpersonal factors include relations with family and peers, who directly influence the use of modern contraceptives.

Role of mothers, mother in-laws, partner, and peers

Autonomy gives women the capacity to make decisions, free from other influences and encourages the women's independence in dealing with sexual and reproductive health choices**.** Women and children well-being depends on the women autonomy in matters of reproductive health. Similarly, studies have shown; that among pastoralists in Garissa, women's reproductive decision-making is directly influenced by their husbands, who make preferences for her and this hinders the women choice of reproductive health (59).

Studies have shown that among the married women in the Somali community, the leading factor for none of the modern contraceptives being used, is refusal of husband (82). Studies in similar pastoralist community in Ethiopia found that husbands have a lower engagement in family planning and contraceptive use. Additionally, there exists a cultural norm in the community, where the husband has the ultimate decision-making power, resulting in the inability of women to make independent choices for their reproductive health rights (96).

Partners also play a crucial role in influencing the modern contraceptive use among the pastoralist youth. Studies conducted, on parents and adolescents' perspectives on contraceptives in Narok and Homa Bay Counties, revealed a lack of parental engagement and education on sexual reproductive health issues to the adolescent, due to misconceptions of sexuality issues, and about the side effects of contraceptives (93).

Studies conducted among the Somali pastoralists in North Eastern Kenya revealed that mothers have a significant reproductive health decision-making role to their young married daughters who expect support and guidance, additionally, female neighbours also play a crucial role in supporting and influencing reproductive health issues (60). Studies from the Somali in Wajir have shown that mothers-in-law play a role in exerting direct influence over the daughter-in-law's reproductive health decision, negatively impacting the uptake of modern contraceptives, The stepmother's refusal has been given as a reason for non-use of contraceptives among married women (82).

4.1.3 Institutional Factors

These are factors that influence the use of modern contraceptive services among pastoralist communities to reduce unmet needs. These are the health system factors and include: access to reproductive health services, and health care providers influences,

Access to Reproductive Health Services

Research has indicated that pastoralists in low and middle income countries have a low access to reproductive health services (77). Pastoralist communities face diverse and complex barriers to accessing and utilizing the reproductive health service they need, due to their lifestyle of living in remoteness, and vast land areas, which limit the use of health care facilities, Similarly, the areas where pastoralists live have few healthcare facilities available; the limited transportation options lead to the need to travel longer distances to access health facilities and use (85), (94), (88), (97).

Counties with majority pastoralist communities in Kenya, have the longest average distances to reach healthcare facilities, as shown in Table 6 below. This is worse than the national average distance of all counties which is 3 Kilometre**s** (KM) (98).

Table 6: Distance to nearest health facility by county (98)

	County	**Distance to the nearest Health facility in Kilometers**
1	Wajir	52.6
2	Garissa	35.3
3	Mandera	41
4	Turkana	9.1
5	Samburu	2.9
6	Marsabit	2.1
7	Kajiado	4.3
8	Narok	34.2
9	West Pokot	1.5

Research has shown that the use of reproductive health services by pastoralists living in Wajir and Mandera is restricted due to a limited number of healthcare facilities and poor transportation options. These challenges are further exacerbated by inadequate road networks in the area (78).

A study conducted at Garissa Referral Hospital, identified one of the obstacles to accessing modern contraceptive services as the substantial distance to healthcare facilities, which can necessitate a walk of up to 30 minutes. This factor adversely affects women seeking contraceptive services from the hospital (99). The situation is similar among other pastoralists in West Pokot, where the long distance to health facilities and the lack of youth-friendly services are the main obstacles preventing young women from accessing contraceptives (100).

Similar findings revealed that among Afar pastoralist communities of Ethiopia of pastoralists they are facing limited access to needed health services so hindering the use of modern contraceptives (96).

Healthcare infrastructure in rural areas is very poor, with no reliable electricity, poor quality water, and road networks. These has a negative impact on access to health services needed as health facilities in rural areas do not attract qualified health personnel essential for providing basic routine services (101). Lack of healthcare providers in healthcare facilities has also been revealed to be among the barrier contributing to the limited access to reproductive health services among pastoralist women in Garissa is (59),

The quality of health services, offered in health facilities, influences the access to health services; studies have shown that healthcare workers, especially those in lower-level health facilities, lack the necessary expertise and feel uncomfortable talking to youths about their sexual behaviour. Similarly, the healthcare workers lack essential training and post-basic training on reproductive health services to engage with pastoralist communities (88). Studies among the Maasai community have shown that Healthcare providers are unable to provide reproductive health services needed by young girls pastoralists, due to a limited understanding of nomads and their culture and lack of evidence to inform about effective implementation (102).

The cost implication for modern contraceptives and use and access have not been given focus in this study. Due to the fact that modern contraceptive services are provided free in all government health facilities in Kenya, as part of the government's commitments to reduce unmet needs of contraceptives and making it accessible and affordable (38), large part contraceptives commodity supplies to government health facilities are heavily dependent on donor support, which are either insufficient or unsustainable (103).

There is no evidence of stock-out of modern contraceptive methods in healthcare facilities in counties with pastoralists. Study in Garissa showed that women missed their methods of choice while accessing the Garissa County referral hospital (99). Due to the lifestyle of movement from place to place due to seasonal changes, pastoralist families have very little money to spend on transport to access reproductive health care needed. Limited transportation availability makes transport costs expensive (59), (85).

On the choice of modern contraceptive sources for pastoralist no evidence was found, but a similar Study on low resource, Muslim majority setting in Kwale County Kenya, revealed that among young women and men, the common sources of modern contraceptives are pharmacies and public health facilities, there was no preference on where to get contraceptives (104).

Health Care Provider Influence

Among pastoralists in Kenya, the perception of the health service providers influences women's decisions to obtain the reproductive health care they need. This includes the perception that the treatment and care offered at health facilities is disrespectful and unfriendly, leading to women not to seek services from that facility (88). Similarly, among Somali community pastoralists living in Garissa, the gender of health service providers influences the women's decisions to obtain reproductive healthcare needs. If there is no female nurse to attend, women prefer to deliver at home (59). This has a negative impact on the women's healthcare needs, including any opportunity to discuss the modern contraceptive uptake with mothers. A study conducted in Wajir and Mandera has shown that the perception of health workers and local leaders, that contraceptive services are not the priority of health services for their community, but food, water, and other health concerns, negatively influences the right to access modern contraceptives among women and men in these communities (78).

Studies from Narok has also shown that the healthcare volunteer (CHV) do have a negative perception of modern contraceptives, which is contrary to the expectation that CHVs are knowledgeable to educate communities about different health benefits, this limits the use of modern contraceptive among pastoralist. (93).

4.1.4 Community Factors

Community-level factors encompass community elements that influence the use and seeking of modern contraceptive services. It includes cultural values, gender, societal norms and stigma.

Cultural Values, Practices, and Gender Norms

Negative traditional cultural practices are common among pastoralists in Kenya, despite the ban on harmful practices for children and youth in Kenya's 2010 Constitution (33), the national prevalence of female genital mutilation and cutting (FGM/C) is at 15% (6), on the contrary, pastoralist communities still practice FGM.C with Garissa, Wajir, and Mandera Counties having a prevalence of 98% (105). The pastoralist communities have a higher prevalence of child marriage than the national average (106). The national prevalence of child marriage in Kenya is 23%, and the prevalence of counties with pastoralists is 33.3%, Wajir 53.1%, and Mandera 40% (107), (108). Marrying at a tender age among girls, limits their ability to comprehend, know and make decisions on modern contraceptives use. A study from the Somali community in Wajir and Mandera has revealed, that due to cultural practices, men marry young girls as early as 16 years, the women's decision to marry early is influenced by the stigma surrounding marrying past the typical age of 16 years for women. Unmarried women and girls are stigmatized for not marrying before the age of 18, similarly, their families and partners also experience negative social sanctions (106). This finding is similar to other studies, finding adolescent girls are faced with the dilemma of whether to use contraceptives or opt for abstinence, given the crucial role of motherhood in the women's lives. The fear of using modern contraceptives to prevent pregnancy on the perception that it causes infertility, thereby impeding their future motherhood status, appears stronger than having a premarital birth. Comparing early pregnancy with the usage of contraceptives, early pregnancy is the preferred option (93).

The existence of these deep-rooted cultural practices among pastoralist communities, directly influenced the low utilization and use of modern contraceptives, resulting in a rapid population growth (109), (110). Other studies have shown that women, who had exposure to FGM, have a lower prevalence of modern contraceptives use (111). Local leaders from Wajir and Mandera, due to the cultural influence, do not see modern contraceptives as a priority of health services for their community, this view negatively influences the use of modern contraceptives among women and men (78).

There are several socio-cultural characteristics of pastoralist communities that have been implicated, to contribute to the poor uptake of reproductive health services: One strong factor is their deep sense of tradition of lifestyle and autonomy, they need that to enable them to live in the harshest conditions. This is limiting their access information over centuries to need to influence the uptake of modern contraceptives (85). Of great concern is the pastoralists' lifestyle of moving from location to location in search of pasture. It hinders their access to essential reproductive health services needed (94), (88), (112).

The desire to have **more children** with preferred boys among the pastoralists is a cultural aspiration as a sign of wealth and withholds the use of modern contraceptives (94), (88), (112). Among Somali in Wajir and Mandera, the desire to have many children is the main reason for the low uptake of contraceptives. The community and religious leaders in the community see modern contraceptives as a barrier to having the maximum number of children one could have, children are needed for community population growth, protection of the community and its land, as a workforce to take care of animals, take care of parents when they grow old (78).

In a similar context among the Maasai community, religious leaders are not openly against or promote modern family planning, but older women and men believed that new methods were introduced to kill young women or sterilize them, so that they could not become pregnant. Due to cultural norms, that treat women as inferior, such as forced early marriage and low representation of women in positions of leadership and critical institutions, there is a low representation of women in school and the workforce (88).

A study conducted in Kenya, among the Turkana and Samburu pastoral tribes, early marriage is promoted by parents. In these societies as a means of providing income for the family and the communities, believe that having children is both a divine blessing and a prestigious method for gaining wealth. Girls in these communities were not allowed to refuse men who approached them for sex. Women are permitted to have children with multiple men and adolescents aged between 10 and 14 years were also deemed old enough to engage in sex after circumcision, these practice prevent the use of modern contraceptives in these communities (91).

Among Somali pastoralists, husbands are key **decision-makers**, who have a negative influence on the women's use of modern contraceptives. This has been widely referred to as permission and consent giving, when referring to the women's access to contraceptive methods. This has led to tensions and secrecy between men and women around contraceptive use decision-making process (78). Among pastoralists, **gender inequities** prevent women from making any decisions regarding their reproductive health needs. Husbands are the only ones who can make reproductive health decisions and are always unsupportive to their wives on the use of modern contraceptives (60), (86). Gender norms among pastoralist communities gave the sole decision-making responsibility for child spacing to men; women must get their husbands' approval in advance, if they wish to space out their children. This leads to significant barriers to accessing contraceptives needed by women. The desire for large families, exceptions from women to have many children and give birth soon after marriage, is a significant societal norm, preventing the use of modern contraceptives. This is made worse by the fact that these norms are appraised in the community and those who disobey particularly women are condemned by the community members (113).

Among the Samburu and Turkana girls are not supposed to talk to older people, and young men are not supposed to talk to women, according to culture, This expectation consequently limits interaction and influences among youth and ultimately reduces the number of young people seeking SRH information and services from health care facilities (91).

A study revealed that among the Maasai girls who use contraceptives are subjected to **stigma** and church condemnation as it is argued that it encourages prostitution and immorality (94). According to a study conducted among Muslim pastoralists in Wajir; women who use modern contraceptive methods are seen as immoral and contrary to Islamic principles, it is believed that contraceptive use encourages extramarital affairs and is considered to be against Somali culture (87).

Polygamy practice among pastoralist communities forms a barrier to modern contraceptive use. Despite polygamy being accepted in Islam and in the Somali community, it creates competition for childbirth among co-wives and influences more pregnancies for larger family sizes, which leads to low contraceptive use (86). Studies on the Afar community in Ethiopia, which is similar to Somali in Kenya, have shown similar findings on this as well: women who are in monogamy are more likely to use contraceptives than those in polygamous marriages (83).

4.1.5 Policy Factors

These are policies, strategies, plans, and laws from the national and/or county governments, that could either impede or promote modern contraceptive uptake, among pastoralist communities, that are marginalized.

No evidence has been found on how policy influences modern contraceptive use among the Somali in Garissa, Wajir, and Mandera counties in Kenya. The national constitution and policies positively influenced overall country-level access to modern contraceptives. The Constitution of Kenya (2010) grants every Kenyan the right to the highest attainable standard of health, which includes the right to quality reproductive health services (33). Kenya has two national policies which have directly linked to contraceptive use and uptake. The Kenya Health Policy 2014–2030, which gives overall guidance to enable considerable improvement in Kenya's health status in accordance with the Kenyan Constitution (38), and the National Reproductive Health Policy 2022 – 2032 that provides a framework for improving access to reproductive health services, including modern contraceptives, for all Kenyan citizens. The policy emphasizes the need to reach marginalized and underserved populations, to promote their reproductive health rights (64). Despite having several policies, that are needed to promote equity, and address the needs of the poor and vulnerable, the Kenyan health system is highly inequitable due to difference in the number and infrastructure of health facilities between rural and urban, and national policies have not shown any progress in meeting the needs of those who face challenges to the health services they need (114).

Kenya does not have both county-level and national-level specific family planning and contraceptive policies in place. The National Family Planning Program unit is within the Department of Family Health (115) with an objective to attain Zero unmet need for family planning, but does not elaborate plans to reach pastoralist communities that have the lowest contraceptive use. The National Family Planning Guidelines for services providers provide a framework for the provision of family planning services across the country (116), but does not have particular focus plans for counties and communities with a very low contraceptive uptake, compared to the national average.

The County Integrated Development Plan (CIDP) 2018-2022 for the three counties has been reviewed to identify any specific actionable plans to increase the utilization of modern contraceptives. Unfortunately, this crucial issue did not receive the necessary attention it required, despite acknowledging that all three counties have the lowest contraceptives prevalence rate nationally, the Garissa CIDP has proposed specific budgets to contraceptive uptake, but did not set any target for the five years of the plan (25). For Wajir CIDP, did set a target of contraceptive utilization rate of 18% by end of 2022 (26), and finally, Mandera CIDP did set a contraceptive utilization target of 22% by the end of 2022 (27), the study could not ascertain how much has been achieved on these target set by the county governments. Limited opportunities exist for disadvantaged populations to interact with decision and policymakers (88), reaching out and engaging with them will break barriers to inform policymaking.

Family Planning 2030 (FP2030) is a global partnership platform that brings together all family planning stakeholders from governments, civil societies, donors, and other global institutions. FP2030 is the predecessor of Family Planning 2020 (FP2020) (117), counties share information and commitments results for accountability. The Kenya government made a commitment on FP2030, with national commitments to improve on key areas that need to be enhanced in the family planning sector. The commitments the government made through FP2030 were to Increase domestic financing, consistent supply of commodities, removing socio-cultural barriers, capacity strengthening of health care workers to better engage underserved and hard to reach communities, and better quality data availability for decision

making (118). No information is available how FP2030 has influenced the use of modern contraceptives among pastoralists in Kenya.

4.2 Promising interventions and practices to contribute to the reduction of unmet needs of modern contraceptives.

This section presents three projects from two countries of similar contexts to the Somali pastoralists in Garissa, Wajir, and Mandera and successfully implemented interventions to address low uptake of modern contraceptives. These are the Afar region of Ethiopia inhabited by the Afar pastoralist community with a modern contraceptive uptake of 11.6% among women of reproductive age(119) The Karamoja region in Uganda inhabited by the Karimojong pastoralist (120) with modern contraceptive use of 7% among women of reproductive age (121). Finally, the study will look into the Benishangul-Gumuz Region project of Ethiopia, which has different communities with a low uptake of modern contraceptives of 28.4% (121) and almost half of the population are Muslims (122).

4.2.1 “A’ago” Project in Afar Region of Ethiopia

The project was implemented between 2017 to 2021 by “EngenderHealth” organization and a number of partners and implemented in the Afar region of Ethiopia (123) With objectives to improve access sexual and reproductive health (SRH), increasing demand for SRH information and services, and create an improved enabling environment for the youth. The project targeted several community structures which included: youth both in and out-of-school, universities, and women support groups to create demand.

To supply SRH services provision, the project supported 260 healthcare facilities, including private healthcare facilities. Similarly, the project trained healthcare workers, and repaired healthcare facilities. Several key intervention measures were implemented to increase demand, broaden access, and improve the enabling environment for SHR services in the Afar community. These interventions have been documented from the project to address barriers and increase access.

To overcome the low uptake of SRH services, due to socio-cultural norms and beliefs, the project did an engagement with the influential community and Islamic leaders were enhanced, by organizing SRH sensitization fora. Trained community health workers, to better engage and facilitate experience sharing among community leaders, religious leaders, and youth, who will also reach out to other members of the community. Strengthened community structures, by establishing women's development groups, established youth-led structures and strengthened the community health structure.

Addressing limited knowledge and attitudes on SHR among the youth, the project increased demand for information and services through sexuality education in schools, and the use of digital technology tailored for the youth through community-level youth groups, community health workers, and the use of media to disseminate information. The project employed a variety of social and behavioural change communication strategies by empowering the young people to demand and exercise their rights by developing meaningful youth participation (MYP) strategies and manuals and conducted MYP training and supporting out-of-school youth with seed funds for small businesses.

To improve SHR services, the project Increased access to modern contraceptive services, by improving the overall health systems, by supporting 260 health facilities, improving supply chain management of essential commodities and supplies; renovating healthcare facilities, and availing medical equipment needed in health facilities. Similarly it expanded reproductive health services structures through the Philips-led backpack intervention to expand services to remote pastoralist communities. The Philips backpack contains portable health care tools, 10 outreach teams, and 122 health extension workers

(HEW) were able to use the backpacks to provide community and household services, mainly maternal health services in previously underserved areas. To ensure quality improvement for sexual reproductive health services, the project standardized training for all healthcare workers and other stakeholders. This included clinical training for health care providers and non-clinical training for other government officers. Similarly, the project organized on-the-job training.

Finally, the project conducted workshops to sensitize and position reproductive health as a key priority and advocated for budget allocation at the local level and sensitized the judiciary and law enforcement bodies on reproductive health rights.

implementing the aforementioned intervention strategies collectively, the project made a documented success in improving SHR among the Afar, through the change observed from the baseline survey and end-line survey: contraceptive methods increased from about 15% to 36%, and the knowledge of contraceptive methods among the Afar increased from 36% to 52% (124).

4.2.2 Integrated family planning with immunizations in Moroto Uganda

International Rescue Committee (IRC) an international non-governmental organization working in 40 counties (125) Implemented an integrated FP and immunization in government health facilities with in Moroto district of Karamoja region in Uganda between January 2016 to December 2019.

The project objectives were to increase access to, demand for, and uptake of modern contraceptives, through strengthening FP services, improving referral pathways, supporting modern contraceptives supply provision, and building capacity among healthcare workers (HCWs).

The intervention implemented included: training and mentoring of facility-based health workers on family planning counselling and modern contraceptives service provision, The project also increased the capacity of members of the Village Health Team (VHTs) to support health workers on FP counselling, improving immunization defaulter tracing and developing a comprehensive community engagement strategy with involvement of community leaders, healthcare workers and VHTs.

VHTs led health talks at community level in the community level through the provision of counselling and referrals for FP services during household visits and by using expert clients. Community health leaders and role models who are engaged with FP services from the community supported VHTs. Healthcare workers and VHTs worked together to provide FP counselling to women and to support their decision-making around FP service uptake. Similarly, the Health care workers provided FP counselling and service to women during antenatal visits, after delivery, during postpartum visits after birth, and during immunization schedule visits. Between July 2016 to February 2018, the project interventions monitoring revealed a 42% increase in the number of women who accepted FP services after taking their children for immunization.

The project interventions and practices addressed a number of barriers to the use modern contraceptives along the implementation:

Fear of side effects impeded cultural beliefs and led to a reluctance to use modern contraceptives. This has been addressed through healthcare workers by informing women of anticipated side effects and how to mitigate them, through this women's knowledge and belief that side effects could be managed enabled them to make choices on modern contraceptive use.

Preference for national family planning over modern contraceptive methods was a belief in the effectiveness of natural FP methods which could be fitting to the pastoral lifestyle of the Karamoja for birth spacing led to women not using modern contraceptives. The reliance and preference for natural

methods not effective due to the changing lifestyle as men spend less time in the field with livestock, abstinence no longer worked, and the knowledge that any side effect can be managed, led women and men to use modern contraceptive methods.

The pastoralist lifestyle of men in the community and the lack of male support has been a barrier to modern contraceptive use as men in the community had pride in many children and having a wife is an opportunity to produce children which should not be limited. The fact that men were less in the field made men to better engage in family planning decision-making on the use of modern contraceptives. As men are more at home, have seen that natural methods no longer work, and benefited positively from family planning messages in the community.

Food insecurity in Karamoja influenced health-seeking behaviour among women as they see food as a priority. Women accessed health services from health facilities that were offering food and in addition, received family planning counselling. Women feared that due to limited food, they could not feed their children influencing the use of modern contraceptives. More women were accessing health facilities that were offering food and getting family planning counselling sessions as well (126).

4.2.3 Integrated family Planning and immunization services in the Benishangul-Gumuz Region of Ethiopia.

From January 2016 to May 2018 the International Rescue Committee supported an integrated project, delivering FP with immunization services across 114 government health posts in Assosa and Bambasi woredas (districts), in the Benishangul-Gumuz Region of Ethiopia.

The project was primarily focused on strengthening FP, and childhood immunization services, enhancing referral pathways for both services, improving immunization monitoring, and building capacity of facility-based health extension workers (HEWs) on FP counselling, administering short-acting modern contraceptive, and implant insertions.

In addition, the project expanded the variety of modern contraceptive options available at health posts, by introducing implant insertions without its removal as per the HEW national policy guidelines. The project also designed a job aid that supported HEWs, to improve immunization defaulter tracing who are based in health posts. Additionally, the project supported the development of community engagement strategies that involved community leaders and village command posts which aided HEWs during challenges and reviewing health post-performance.

HEWs were the main delivery of the interventions by providing FP counselling and administering modern contraceptives, including implant insertion during home visits and at health posts or outreach posts. Women in post-partum, during the post-natal checks, were counselled and were provided with modern contraceptives, similarly when women visited health posts for their child's immunization. Other health workers like midwives and nurses offered coaching to HEWs and received referrals from health posts at larger health facilities.

Through the exposure of these interventions the project data revealed 63% use of modern contraceptives among women who brought a child for immunization at least once, and among the community members who accepted modern contraceptives through these interventions, 31.7% were new acceptors between January 2017 and May 2018.

Overcoming barriers during Project interventions implementation:

Religious beliefs and male partners' perceptions influenced the acceptance of modern contraceptives. It was believed that preventing childbirth and the use of implants was considered forbidden under Islamic law. Male partners did not want women to prepare food for them during Ramadan while using an implant. The project intervention implementers engaged Islamic religious leaders through training and worked with them to analyse religious books on the use of family planning. This led to the recognition of the alignment between religious books and the use of family planning, which ultimately resulted in the acceptance of family planning by the religious leaders. Similarly, the male partners accepted modern contraceptives as their belief was influenced by their religious faith, and the fact that their religious leaders supported family planning.

Health extension workers (HEW) and health care workers (HCW) mechanism challenges: The integrated delivery model was taken as a burden and affected the attitude of HEWs and HCWs. The adoption of innovations within the integrated service delivery, training in the integrated delivery of FP and immunization with practical experiments given with clinical coaching made the HEWs proficient in the provision of implants to women. This led HCW to feel that integration of FP and immunization reduced their workload. Women still had to travel a long distance to remove implants by HCWs as the HEWs could not remove them. The training on implant insertion was a positive intervention as the engagement of HEWs and post-partum women led to influenced decision-making on modern contraceptive use (127).

Chapter Five: Discussions

Drawing from the literature reviewed, socio-cultural practices and norms within the Somali communities in Garissa, Wajir, and Mandera greatly influence the use of modern contraceptives. The cultural lifestyle of living in remote locations, limits access to information on contraceptives. The existence of polygamy practices in the community, creates competition to have more children among co-wives, and the desire to have a large family size, prevents the use of modern contraceptives. Additionally, myths and misconceptions about side effects, which include infertility and bleeding on the use of modern contraceptives are significant deter to its use.

Somali Society is typically patriarchal, and husbands do not support the use of modern contraceptives by their wives. The existence of gender inequality significantly affects the well-being of both younger and older women in the Somali community, by limiting the autonomy of women, preventing women from making decisions on their reproductive health. This forces women to seek approval from their husbands before using contraceptives.

Cultural beliefs restrict parents from holding discussions about youth sexuality and pregnancy, this leads to a lack of awareness and limits the use and access to modern contraceptives among the youth. Similarly, early marriage among girls through their parents limits decision-making capacity and are eager to have children immediately, due to societal expectations thus preventing any opportunity to delay pregnancy and use modern contraceptives. The research also found culture-induced norms of stepmothers and mothers-in-law of having a role in deciding when to use contraceptives, preventing the use of modern contraceptives by young married women.

Negative socio-cultural factors are exacerbated by high illiteracy levels among the Somali pastoralists limiting their knowledge, awareness, and benefits of modern contraceptives leading to suboptimal uptake among the community. The study found that modern contraceptive use increases with an increase in education level due to better awareness.

Evidence from the three promising interventions in pastoralist communities reviewed has demonstrated effective intervention strategies for addressing socio-cultural factors negatively influencing the use of modern contraceptives. These strategies either leveraged the influence of community leaders or health workers to address. In the "A'ago" project in the Afar region of Ethiopia effectively engaged influential community leaders by organizing different forums to discuss negative cultural practices that prevented the use of contraceptives and demystified it. These leaders ultimately educated other community members. Similarly, the integrated project in the Karamoja region of Uganda positively tackled myths and fears about the side effects of modern contraceptives. This was done through healthcare workers who informed users on anticipated side effects and how to mitigate them in the event one experiences them, this led to an increased uptake as women are more prepared than before. Finally, the integrated project in Benishangul-Gumuz Region in Ethiopia had a community leaders engagement structure that supported HEW during implementations.

The Somalis are mainly Muslims, the religious beliefs belief that contraceptives are a foreign concept and not allowed in Islam and negatively influenced the use of modern contraceptives. There is a belief that children are a blessing from God and should not be planned for, with religious leaders condemning its use. There are diverse opinions found within the community on the religious perspective, some accept contraceptives on medical grounds to space children when needed and others completely ban the use of contraceptives, urging that it is against Islam. The study found that religious belief negatively affects the use of health services among the Somali, when women did not seek and use sexual and reproductive health services they require if the health worker attending is male.

The evidence presented in the two projects from Afar and Benishangul-Gumuz Regions of Ethiopia where the majority of the population is Muslims, it demonstrated how religious factors hindering contraceptive use can be successfully addressed. These interventions involved training Islamic religious leaders on modern contraceptives and collaborating with them to analyse religious books on entire family planning approaches, to align contraceptive use with Islamic teaching. This engagement led to religious leaders' acceptance of contraceptives and becoming a voice for its use in the community, which was an influential move given their high standing in the community. Similarly, this approach can be implemented among the Somali community, where the majority is Muslim. This would involve bringing together technical health professional leaders and local Islamic scholars to have discussions on different contraceptives, clarify any ambiguity, and review Islamic teaching on family planning and contraceptives use. Once an agreement is reached, Islamic leaders would relay messages to society which will positively influence the use of modern contraceptives.

The research found that the Somali encountered complex challenges in accessing reproductive health services they needed, due to their lifestyle and culture of living in a remote living environment. There are a few healthcare facilities available near the dwellings of families, Health facilities lack the right infrastructure and have limited healthcare workers, and lack of variety of modern contraceptive method options locking out of opportunities to use modern contraceptives when needed. Compared to other counties, the Somali-dominated counties have the longest distance to cover to access health services. Studies revealed the existence of healthcare provider-influenced challenges of not acknowledging contraceptives as a priority health intervention concern for the community and having limited knowledge to better engage pastoralists at the health facility. Health care provider included challenge leads to missed opportunities for modern contraceptive discussions with the community when they visit health facilities. An overall health system strengthening is paramount, evident from the "A'ago" project in the Afar region an investment in improving the government capacity in all health responses, renovating health facilities, buying equipment, capacity building for local health structures on leadership and management, clinical training, on job and mentorship programs to better overall the health system boasts the morale of staff. This ultimately improves access to health services including modern contraceptives. All three projects invested in the improvement of both healthcare workers' capacity to better engage the community and in the delivery of modern contraceptive services.

Evidence in the three projects interventions implemented, from the two countries of Ethiopia and Uganda, have systematically addressed access to modern contraceptives challenges by bringing services closer to the community through outreach, using community structures, training health care workers, addressing the supply of commodities, and increasing the number of health facilities offering modern contraceptives. HEWs with portable Philips backs have been used in "A'ago" project in the Afar region to expand reproductive services in remote locations, while in the Benishangul-Gumuz Region project, HEWs as the main implementors of modern contraceptives at health posts and in the community. Similarly, in Karamoja project in Uganda used VHTs who did counsel and referral for family planning services to increase access to modern contraceptives. This can be feasibly implemented in Garissa, Wajir, and Mandera counties, through efficient supply of contraceptive commodities, and the use of trained Community Health Extension Workers (CHEWs), who operate at Level 1 of the health service delivery structure within the community (34), to administer modern contraceptive services. This will ultimately improve increase access to modern contraceptives among the pastoralists.

The "A'ago" project in Ethiopia has also a unique approach, which is different from the other two projects, addressing poor demand of modern contraceptives influenced by cultural practice. To increase demand for modern contraceptives in the community, the project engaged and strengthened community

structures by establishing women, youth groups, did a sensitization forum to prioritize contraceptives as a health priority. The project also advocated for budget allocation. All interventions shaped negative beliefs, attitudes, and cultural practices, that inform behaviours that influence the use of modern contraceptives.

The integration family planning and immunization services implemented in Karamoja in Uganda and Benishangul-Gumuz Region in Ethiopia led to positive impact on the usage of modern contraceptives. This intervention targeted postpartum women through immunization schedules, leveraging already established government service structures. In the KDHS 2022 immunization coverage of children aged 12–23 months in Garissa, Wajir, and Mandera was at 23%, 49%, and 29% respectively (6). Based on the success of the integrated approach in Uganda and Ethiopia, a similar strategy could be feasibly implemented in these three counties, to enhance the use of modern contraceptives. Such an approach is sustainable, with potential to continue beyond the lifespan of the initial project.

The Kenya government made commitments globally and has national policies on family planning. The Kenya government's FP2030 commitments are of importance to pastoralists to reduce the unmet need for modern contraceptives, including increasing domestic financing for family planning, consistent supply of commodities, removing socio-cultural factors, capacity building of health care workers to better engage underserved. Unfortunately, this has not been used to inform county health plans as health is a devolved function of county governments. Additionally, the Kenya Health Policy 2014–2030 and the National Reproductive Health Policy 2022 – 2032 as the overall guiding policies nationally cannot be used to improve the uptake of contraceptives for the pastoralists communities, who historically had the lowest uptake of modern contraceptive in the country living in remote and limited resource settings.

The county governments of Garissa, Wajir, and Mandera CIDP lack any substantial mechanisms to change the situation as the health system is a devolved function. To address these challenges, it dictates the need to come up with an informed pastoralist-specific policy that address the identified factors in this research as intuition-driven policy choices are likely to be flawed.

It is critical to intensify evidence-based intervention implementation as every context is unique and no fit for all approaches exists. The three discussed promising intervention practices can be tailored using factors that influence the use of modern contraceptives among the Somali pastoralists in Garissa, Wajir, and Mandera, to reduce unmet needs for modern contraceptives, due to the similar socio-cultural practices, lifestyle, and health system similarities. It is important to note that these promising interventions presented are multifaceted approaches that worked effectively in each project to change negative behaviour limiting the use of modern contraceptives.

The intervention for the Somali pastoralists must consider the findings in this study on illiteracy status, religious belief, limited awareness, limited access to health services, perception, myths, societal norms on contraceptives, sexuality subject discussions, and community lifestyle practices. Any intervention taken should also be fully aware of the value of children in the Somali community and how this influences contraceptive use and acceptance.

The Socio-ecological model (SEM) used in this study offered a comprehensive systematic approach to analyse all factors influencing the use of modern contraceptives among pastoralists from individual to policy level factors. The SEM used will also offer better analysis for future research on the same topic.

There is overall limited existing evidence from research done, specific to pastoralist communities in Kenya, despite the huge disparities with other communities due to their unique and complex lifestyle. The

available literature on pastoralist contraceptive use has limited segregation of factors, influencing different groups in the society, married, unmarried, age structure, sex. Additionally, no studies have been done on the influence of national policies on modern contraceptive use among pastoralists.

Chapter six: Conclusions and Recommendations

6.1 Conclusion

The study revealed that among the Somali women pastoralist and their partners in Garissa, Wajir, and Mandera counties in Kenya there are complex barriers that influence the use of modern contraceptives, these are socio-cultural norms and practices among the Somali community which include the desire for large families with preference for boys, polygamy practices, limited women's decision-making capacity due to male involvement and early marriage. Myths that contraceptives cause infertility prevent women from using contraceptives. Similarly, there are religious beliefs that contraceptives are not allowed in Islam, and contraceptives are foreign-induced negative influences. The study also revealed that it is preferred to use "child spacing" rather than "family planning" when discussing the use of contraceptives, to be better accepted in the Somali context.

Within the health system, similarly, the Somali pastoralist community faces a significant challenge in accessing health services due to the scarce number of health facilities available near dwellings. The few existing health facilities have poor infrastructure, limited supplies, inadequate number of health workers with poor capacity to attend and engage the community. Finally, despite the persistently low uptake of modern contraceptives among pastoralists, no specific policies have been formulated to deliberately influence their use and access.

Evidence from intervention from similar pastoralists community have shown that investing and engagement with influential community and Islamic religious leaders, is paramount to positively influence socio-cultural and religious barriers preventing use of modern contraceptives, thereby gaining acceptance among community members. Similarly, integrating modern contraceptive programs into existing health services, such as immunization and training community health workers to provide modern contraceptives, can lead to increased access and reduce unmet needs for modern contraceptives among pastoralists. Strengthening the health system through which a community receives enhanced health services is vital for successful modern contraceptives utilization.

6.2 Recommendations to Policy Makers

The literature review finding of this study informs the below recommendations, which are both short and long time, which can influence the increase in the use and reduction of unmet needs for modern contraceptives among pastoralists in Kenya. Holistic approach is recommended as issues identified are not for the ministry of health alone and must work with other ministries, including the ministry of internal affairs and the ministry of culture. The recommendation is for both national government and county governments equally.

Addressing Socio-Cultural and Religious Barriers to Modern Contraceptive Use

Engaging with the influential community and Islamic religious leaders. This by bringing together healthcare professionals with technical expertise on modern contraceptives, community, and Islamic religious leaders, and facilitating discussions on modern contraceptives mode of action, myths, fears, beliefs, benefits, and Islamic teaching. This process helps everyone to reach the same level of understanding and demystify any barrier. Both community and Islamic religious leaders can serve as voices to influence the use of contraceptives in the community.

Pastoralists culturally sensitive approaches are essential: Create interventions that respect and consider: the lifestyle, cultural practices, values and norms of the pastoralist population. Male involvement should be encouraged as key decision-makers in contraceptive use, as well as other reproductive health

programs. The low levels of education among the Somali community should be considered when designing an intervention to increase knowledge and benefits of the use of modern contraceptives.

Access to Health Services and Integration of Family Planning Programs

Removing structural barriers improving access to health services by increasing the number of healthcare facilities and quality of health services offered to improve access to health services closer to the dwellings and use of community health workers.

Combinations of strategic interventions are recommended by integrating family planning programs with the already existing health system at all levels of health care. Training community health workers to provide FP counselling and provision of modern contraceptives in locations very far from health facilities. This will provide routine health services and family planning and will improve community acceptance. Due to the complex nature of the factors influencing modern contraceptive use among pastoralist communities, a stand-alone intervention cannot be sufficient to reduce the unmet need for contraceptives, as they may also have other health concerns due to limited health care services.

The development of an informed specific policy on modern contraceptives for pastoralists. This can be developed by taking evidence presented by research and validated through the influential community, religious leaders, and health care providers, to address the persistent low modern contraceptive prevalence rate among pastoralists,

Limited research has been found to on the factors influencing the use of modern contraceptives among unmarried women and men in pastoralist communities. To better understand their needs, barriers, and preferences, it is crucial to conduct further primary qualitative research.

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