ASSESSING BARRIERS OF CONTRACEPTIVE UPTAKE AMONG ADOLESCENT GIRLS IN A RURAL DISTRICT OF MALAWI

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Assessing Barriers of Contraceptive Uptake Among Adolescent Girls in a Rural District of Malawi

ABSTRACT

Background: The unmet need for family planning for unmarried adolescents in Malawi remains high despite efforts to improve provision, leading to a high rate of adolescent pregnancies. In Neno District, there is a 52% unmet need for family planning in adolescents, with 32% of young women giving birth before 18 years of age.

Methods: We conducted a mixed-methods study on family planning provision for adolescent women in Neno District. First, we collected data from (a) family planning reports from 11 health facilities, (b) *m*Health Community Health Worker data from two catchment areas, and (c) facility survey data from six randomly selected facilities. Then, we conducted three focus group discussions comprised of teachers and parents and 32 in-depth interviews with 20 adolescents, four local leaders, four service providers, and four facility managers.

Results: Despite the health facilities being stocked with required resources, the uptake of family planning among adolescents was very low, with only 2.9% of adolescents 10-14 years and 10% of adolescents 15-19 years accessing family planning services in the Neno district in 2019. In 2020, the uptake was 20% lower than in 2019, in part due to the COVID-19 pandemic. Uptake was higher in the dry season compared to the rainy season. We identified barriers to contraceptive uptake, including lack of youth-friendly health services, poverty, lack of privacy, misuse of media, and the impact of the COVID-19 pandemic.

Conclusions: Barriers to adolescent contraceptive uptake are multi-sectoral and inadequately addressed by existing programs in Malawi. Efforts are needed to provide effective and culturally acceptable interventions to increase adolescent contraceptive uptake.

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Part 1: HISTORY

1. INTRODUCTION

It was 11 pm when I was called from home by the maternity team at the Neno District Hospital in Malawi. There was an emergency. The woman was referred from one of the hard-to-reach health facilities, the Nsambe Health Center. The nurse sounded panicked.

The driver picked me up at home, as was the norm, on a rainy and muddy night. The driver had first picked up and dropped off the patient before coming to pick me up. The driver said, "I struggled to reach this patient. It took me four hours to go 34km to the health center. Imagine." The driver sounded frustrated, more frustrated at the broken health system than the road system. The driver added, "How could they refer a very sick patient without a nurse escorting her? She nearly died in the car."

Jane Phiri was just fifteen years old. She was referred from the Nsambe Health Center, and this was her first pregnancy. She came to the Neno District Hospital with a diagnosis of eclampsia, a condition where a patient experiences seizure in pregnancy due to increased blood pressure. Infectious diseases, including cerebral malaria and meningitis, were ruled out. After three hours, she was stabilized with no seizures. She was given anticonvulsants, anti-hypertensive medications, and oxygen therapy. The team that was taking care of her then decided to deliver her, and the only option was through surgery. Unfortunately, the patient died in the operating theatre after the baby was born, who was very fine.

It was heartbreaking for Jane's mother. We all could feel the pain as she was crying for her fifteen-year-old daughter while carrying a newborn grandson. When Jane's mother cried, I heard her ask, "Who is going to take care of me?" [1]

[1] True story but with pseudonyms.

One week after Jane's death, we visited her mother in the Kalimedzako village, 34 kilometers from the district hospital. We wanted to check how the baby was doing, but I had so many unanswered questions as I processed what had happened. Why was Jane pregnant at the age of 15? What socioeconomic status of the family could have facilitated this early pregnancy? Was Jane out of ideas of what to do or where to get any support? What is the role of the government and culture in supporting adolescents like Jane?

Upon seeing me, Jane's mother's face fell, and tears filled her eyes. She remembered me and that fateful night when her daughter painfully died because of childbirth. I waited a while until I felt she was composed, then I asked, "Where is the baby's father? Was Jane married?"

Jane was a first-born child in a family of five children. Her father died when she was eleven years old, and Jane's mother struggled alone to raise the children. Jane was married off at the age of fourteen by her uncle to a thirty-six-year-old man. Her husband lives and works in the Republic of South Africa. "He was sending money and goods like blankets every month." The older woman paused as tears rolled down her cheeks. She knew that he would stop supporting them since her daughter is dead.

Their house was dilapidated and made of mud, with a grass thatched roof, a striking symbol of impoverishment. The old woman is a peasant farmer who grows Irish potatoes, telling me, "I will have to work hard on my farm to keep the family going."

My mind circled back, and I rested upon more questions. Would Jane be married off so early if her family had the agency to choose otherwise? And more specifically, did Jane had any knowledge about and access to contraceptives at age 15? Could the use of contraceptives have saved her life? Would her husband be required to approve of contraceptives?

Contraceptive use and unwanted pregnancies are key health issues discussed around the world. Like many sub-Saharan African countries, adolescent pregnancy is high in Malawi, with 29% of adolescent girls aged 15 to19 years either pregnant or already have had given birth before (NSO, 2015-2016 Malawi Demographic and Health Survey Key findings, 2017). In 2007, the government of Malawi introduced a set of programs termed youth-friendly health services to support equitable, effective, accessible, acceptable, and appropriate services for youth (WHO, 2002). This included contraceptive services (Health, 2015) whereby the youths are reached by different health services (WHO, 2002). Despite the government's effort to reach out to adolescents, adolescent pregnancies continue to rise in the country (Self, 2018). Teenage pregnancies are even worse in rural areas at 31% as compared to 21% in urban areas (Kanyuka, 2018). Attempts exist to turn the tides, and some programs aiming to educate adolescents have begun across the country. Adolescents are given information, education, and communication (IEC) through different avenues like radios, posters, booklets, and health education in the health facilities and schools by healthcare workers, radio and television presenters, and teachers. These efforts work to expose adolescents to the dangers of early pregnancies and the importance of contraceptive use.

Contraceptives are free of charge in all government and mission-sponsored health facilities in Malawi except catholic headed institutions, which do not offer contraceptive services. Despite the availability of contraceptives, the rates of adolescent pregnancy continue to climb, with rates in rural areas exceptionally high at 31% (Kanyuka, 2018). Studies and experience show that teenage girls' socioeconomic problems, lack of agency, and lack of education or job opportunities push them to get married early in their young lives with the

expectation of having children, thereby subjecting themselves to labor and delivery complications.

In what follows, we will discuss the burden of adolescent pregnancies in Malawi, the social forces that shape teenage girls' lives in rural settings, and the socioeconomic forces controlling adolescent girls' future. We will then discuss the history of contraceptives in Malawi and the social theories, which would help us better understand the magnitude of the problem at hand.

2. BACKGROUND

2.1 Burden of adolescent pregnancies in Malawi

Adolescents between 10 and 19 years old make up 16% of the world's population, approximately 1.2 billion people (Group, 2016). In Malawi, just like many sub-Saharan African countries, adolescents are about one-quarter (24%) of the general population (Group, 2016). Adolescents confront numerous challenges, including early pregnancies. 35% of all pregnancies in Malawi are among adolescents 10-19 years (Loaiza, 2013).

Malawi is one of the world's poorest countries, with an annual GDP per capita of $389 and a Gini coefficient of 0.37 (Nash, 2019). One of the most impoverished regions of the country is the remote district of Neno. Neno is a mountainous, hard-to-reach district in the southwestern part of the country. Access to most health facilities is difficult due to the bad road network, which is even worse during the rainy season, reducing the number of visits paid to medical facilities by the local people. In some instances, inhabitants only visit a medical facility or take their children as a last resort (in times of emergency or when the condition is extreme). Optional

or preventive health services are often not accessed. Services such as contraceptives, which are not considered essential, are accessed by a limited number of people.

Adolescents rarely utilize contraceptive services in Malawi and Neno, and it is often the older married women who access contraceptives (Pachauri, 2002). Adolescents are often left out due to cultural norms, such as social stigma, which do not allow them to participate in such services (Nash, 2019). Most of the time, when an adolescent girl visits a health facility, she is judged by her peers, elders, and health care providers as being promiscuous. The judgment, coupled with religious beliefs, pushes adolescent girls away from the services, thereby ending up experiencing unwanted pregnancies, which adolescents sometimes attempt to abort. The non-use of contraceptives increases the teenage pregnancy rates in the district, which increases the complications that follow.

Women and girls in Neno have more children on average and get married younger when compared to the country as a whole. The total fertility rate for Neno is 6.2, which is higher than the country rate in Malawi, which is 4.2 (MES, 2014). The age-specific fertility rate, calculated as the number of live births to women in a specific age group in a specified period, is 169 for Neno and 143 for Malawi for adolescents 10-19 years. In Neno, 12% of women get married before the age of 15 compared to 10% for the whole nation, and 60% get married before 18 while the entire country is at 50% (NSO, Malawi MDG Endline Survey 2014, Zomba, Malawi, 2014).

2.2 Health services in Malawi

Malawi's public health system is a 3-tiered system of medical facilities. The system consists of primary, secondary and tertiary.

Primary: This consists of health posts, health centers, and rural hospitals. Normally they only admit maternity patients, but the rest are referred to the secondary level of care. This includes the out-patient department and all maternal health services. The maternal health services include family planning, antenatal care, labor and delivery, postnatal care, newborn care, and cervical cancer screening. It is operated by either a nurse or a medical assistant, and the Health Surveillance assistant is responsible for public health activities. The medical assistant or the nurse usually is on duty 24 hours a day due to a staff shortage.

Secondary: These are district hospitals that are in each district in the country, Neno inclusive. They are responsible for receiving patients from primary health care and have an admission area, theatre for emergencies and electives, laboratory, and radiology. They usually are headed by medical officers. Typically, there are one to three medical officers per district who are not specialists. All the complicated cases are therefore referred to the tertiary level for further management and care.

Tertiary: These are urban central hospitals and other specialized hospitals like mental health hospitals. These are operated by specialists who are responsible for all the complicated cases from the districts.

The health system in Neno has many shortcomings. Few nurses and clinicians are working per facility against the permanent established vacancies. In my experience working as a clinician in Neno, most rural health facilities are served by one nurse solely responsible for providing all maternal and child health services. These services include family planning, cervical cancer screening, antenatal and postnatal services, labor and delivery, and newborn care. Workers struggle to keep taking care of patients, but they soon suffer burnout due to the

workload. Such lack of adequate support to the patients and the health care workers contributes to the poor quality of services.

Such inadequate health services have contributed to social suffering. Social suffering is one of the four key biosocial theories-social sufferings, unintended consequences of social action, the social construction of reality, and biopower that are positioned to inform a deeper analysis of the complex problems shaping global health. Arthur Kleinman's concept of social suffering is derived from what political, economic, and institutional powers do to its people and how these powers influence responses to social problems. Arthur Kleinman further describes social suffering instances as when social institutions (e.g., health care bureaucracy) create suffering, such as the bureaucratic violence of health care, even though they are there to prevent or lessen suffering (Kleinman, 2010).

In Neno, in addition to the lack of staffing, there is a lack of space or infrastructure, making it almost impossible to have much-needed privacy in adolescent contraceptive services. This lack of space leads to a lack of privacy, making adolescents feel ashamed when seen by community members accessing the services. There is also a lack of essential medical equipment. Simple items like a sphygmomanometer for blood pressure check are one of the vital machines mostly lacking in rural health facilities. Lack of equipment forces providers to provide modern contraceptives without checking blood pressure, which does not meet a basic care standard.

The social construction of reality is another social theory described by Physician-Sociologist Peter Berger and Sociologist Thomas Lukeman (Berger, 1966). Berger and Lukeman explain that social constructions are mental categories that groups create over time in everyday conversations to make sense of their shared world. The social constructions are passed from one generation to another, and they are shown as natural and inevitable, helping us to better

understand the world around us. One bad effect passed on from one generation to the other in Neno is the misconception surrounding contraceptive uptake by adolescents. Much as the social construction of reality is seen as legitimate by fields of knowledge, they are not indestructible, as shown in the uptake of contraceptives by adults in the districts who were also buried in myths and misconceptions but now are able to accept the modern contraceptive services.

In Malawi and Neno in particular, large and extended families are very common. In large and extended families, adolescent girls are more likely to receive less healthcare, nutritional support, and education. This usually leads to the intergenerational transmission of poverty, making it hard for adolescents to get out of it. With the help of the larger family members, most of the adolescents are married off at an early stage to relieve the adolescents' families of poverty. Adolescents are married off to older males who are well-to-do. Although short-lived, as cases of separation and divorce are very high, this relief forces the adolescent and her family into further pangs of impoverishment. The adolescent girl is left alone with full responsibility for taking care of the newborn baby.

To explain the biosocial forces that determine health care within a community, Paul Farmer emphasizes that "social forces at work also have structured risk for most extreme suffering" (Farmer, 2010). Poverty is a major social force in low-income countries, driving risky behaviors. In Malawi, poverty is a force sending adolescent girls into early marriages, and they have no control over it.

In addition to the risks of early marriage and childbearing for adolescent girls due to poverty, many other young girls are forced by poverty into sexual risk-taking behavior, which leads to either sexually transmitted infections, including HIV or adolescent pregnancies (Hall, 2019). Greif writes that "lack of food, poor housing, and healthcare is associated with riskier

sex," which increases the risk of adolescent pregnancies (Greif, 2012). In Malawi, poverty is experienced the worst in all southern African nations (Roser, 2013). Adolescents in deep poverty are prone to sicknesses and diseases, some of which arise from complications of abortions, labor, and delivery. Again Arthur Kleinman calls this social suffering (Kleinman, 2010). In Malawi, it is coupled with an underfunded and resourced health system that does not allow adolescent girls to fully take part in sexual and reproductive health services, including contraceptive uptake. Most health systems concentrate on curative health problems these adolescents face concerning early pregnancies forgetting the social problem, which is mostly the root cause of all the health complications. Some adolescents are married off at an early age in the name of cultural norms, but in fact, it is poverty driving them to seek the temporary economic bail-out. This is what brings the distinction between a health and a social problem. Health problems concentrate on the consequences of pregnancy while the social ones look beyond.

2.3 Impact of adolescent pregnancies

Some adolescent pregnancies are planned, and others are not planned. Family members initiate the planned adolescent pregnancies by forcing girls into marriages (Kaphagawani, 2010). These kinds of marriages are primarily motivated by financial desperation. Adolescent girls do not want to lose someone who is supporting them financially, and this leads them to accept whatever older men they are married off to. Some adolescent girls are victims of circumstances as they lack the agency to choose their future for themselves. Some adolescent pregnancies occur in marriage, contributing a lot to the increased rates of adolescent pregnancies (Kaphagawani, 2010). The driver for these so-called "planned" pregnancies is pervasive poverty.

Adolescent pregnancies impact the general education attainment for girls (Chalasani, 2013), as seventeen percent of school dropout was due to adolescent pregnancies. The

pregnancies could be reported as a single reason or in combination with marriage. It was the main reason for dropout seconded by economic hardship faced by adolescents (Chalasani, 2013). In Malawi, adolescent girls drop out of school at higher rates than their male counterparts (Glynn, 2018).

Gender inequality is also a form of structural violence that is keenly felt in rural Malawi. It is primarily adolescent girls who are victims of getting married or being impregnated early in life, thereby thwarting their careers' progression. In contrast, for their boy counterparts, it is acceptable to continue with school when he impregnates a girl, then later start businesses and get settled (Baird, 2012). The right to education, health, food, association with peers for adolescent girls is violated. Unlike in urban areas, in rural areas like Neno, girls start school late, like 8 years in grade 1, making it almost impossible to report back to school after delivery. The school dropout, in turn, makes the single maternal parenthood rate high, subjecting the adolescent girl to further pangs of impoverishment. As much as the Malawi government encourages adolescent girls to return to school after delivery, the majority of these girls do not return to school (Yates, 2008). This is partly because, in rural areas, girls start attaining education at an older age compared to urban areas. This mainly places the adolescent girl in an awkward position as she cannot play with adolescent girls of her age, neither can she chat with the older married people who feel like she is still too young to associate with them. This rural adolescent girl ends up living surrounded by stigma and discrimination.

3. HISTORICAL AND SOCIAL CONTEXT

3.1 History of contraceptive services in Malawi

Access to contraceptive services in Malawi has significantly increased for married women since 2004 (Jayachandran, 2016). In 2004, 28% of married women were using modern contraceptives, which rose to 42% in 2010, and 58% in 2016 (GOM, 2015). However, the adolescent uptake of contraceptive services has not changed much despite government efforts to increase it (Kanyuka, 2018). This is evident through an increased adolescent pregnancy rate, the second-worst in the southern African region after Mozambique (Ehsan, 2018).

Unplanned pregnancy and early childbearing have been a longstanding problem in Malawi. It has contributed to high fertility and population growth. It is also closely connected to the social forces that perpetuate a vicious cycle for the poorest girls who are most vulnerable. It existed in the pre-colonial era and remains a burden today, especially in rural areas (Strobel, 1989).

To better understand the burden that adolescent pregnancies impose on an individual, family, and the nation, we need to understand the history of contraceptive availability and use in Malawi from the pre-colonial era to the colonial era to post-independence.

3.2 History of contraceptive use in Malawi

Since Malawi attained multiparty democracy in 1994, modern contraceptive uptake has slowly increased, with people accepting it for child spacing and family planning (Stephenson, 2007). Even though there was an increase in acceptance of modern contraceptives in the general population, it remained taboo culturally for an unmarried adolescent to access the services. Soon after the United Democratic Front (UDF) was elected into power in 1994, its president, Dr.

Bakili Muluzi, intensified the promotion of modern contraceptive use by developing the 1994-1998 National Family Planning strategy's core goal to emphasize child spacing and limit births (Musila, 2012).

Multiparty democracy brought a new view of human rights to the country. People slowly started understanding that sexual and reproductive health was their right. Human rights were enforced, helped by the International Conference on Population and Development (ICPD) in Cairo in 1994. Dr. Muluzi's administration committed to supporting contraceptive services by establishing the Reproductive Health Unit within the Ministry of Health and explicitly having the Malawi family planning program. With energy and zeal from the president, contraceptive uptake improved in the general population, though it needed much effort to educate the general population. The government used many avenues to educate the rural masses on contraceptive services. The avenues included using the national radio and television stations, booklets for the literate population, and dramas on functions where people gathered. The government had to deal with myths and misconceptions that most people had towards contraceptive services.

3.3 The pre-colonial and colonial era (1930-1963)

Traditional contraceptive methods were used in the pre-colonial and colonial era as a form of family planning for child spacing and not reducing fertility (Kalipena, Gender differences in knowledge and attitudes toward modern and traditional methods of child spacing in Malawi, 1993). Family planning methods, mostly Intrauterine Contraceptive Devices (IUCD) and pills, were used by those who had delivered to allow the baby to grow before becoming pregnant again. Traditionally, adolescents were left out from contraceptive counseling since they had not yet delivered.

The most commonly used traditional methods included: postpartum sexual abstinence, traditional abortifacients, herbal juice and concoctions, strings and wooded beads, withdrawal (coitus interruptus), and the rhythm method (Kalipena, Gender differences in knowledge and attitudes toward modern and traditional methods of child spacing in Malawi, 1993).

Despite some efforts at family spacing, women still had many children. Families were living together on farms, and large family sizes were the norm. In the 1931 national census, there was overpopulation in the southern part of the country (Strobel, 1989). In 1955, agriculture officials also noted the same problem: population growth in Malawi would lead to a lack of land cultivation since it was an agricultural-dependent country (Strobel, 1989).

3.4 Post-colonial era (1964-1993)

Traditional contraceptives were widely used in Malawi even after independence. The people believed that their tradition must be respected by not introducing modern family planning methods (Kalipena, Regional variations of fertility in Malawi, 1995).

After attaining independence in 1964, the Malawi government did not see any need for population control. Despite a call to adopt a policy to control population growth, Malawi did not listen to this call by external bodies and donors. The president of Malawi, then Dr. Hastings Kamuzu Banda, did not support population control. He did not see population growth as a problem in the country even in the next 100 years, as mentioned in the letter Dr. Banda wrote the World Bank president on 14 July 1969:

> *"One of the Bank officials who were here recently…mentioned the question of population explosion in this country. He said that our annual birth rate was too high and that we should do something about it. I disagreed with him…Population*

explosion is not a problem in Malawi for the next fifty years, if not a hundred years. The problem is development for which we need finance." [2]

The Bucharest world conference on Population and Development in 1974 took the position that development was the best contraceptive (UN, 1975). This was an important push back against the World Bank and northern donors, which were advocating population control in many developing countries.

Foreign missionary doctors working in Malawi introduced modern family planning methods in the early 1960s, just before Malawi gained independence in 1964 (Chimbwete, 2005). At a staggering pace, the services gained momentum. After independence, the government was entirely controlled by Malawians, headed by President Dr. Hastings Kamuzu Banda.

In the late 1960s, the government banned modern contraceptive methods in the country (Chimbwete, 2005). The main reasons given for prohibiting the services were the myths and misconceptions associated with the uptake of modern family planning methods. People thought family planning was there to stop them from bearing children altogether. Secondly, Dr. Banda, as a politician, believed in wealth in the people to gain his political mileage. He firmly believed that his power source was the number of people from whom he was governing. Thirdly, the people thought that modern family planning use as a foreign culture; therefore, Malawians wanted to respect their own culture. The chiefs believed that it was culturally unacceptable to limit the number of children (Chimbwete, 2005). Along with Dr. Kamuzu Banda's norm of preserving traditional culture at all costs and the respect he had for the chiefs and politicians, whom he always trusted to speak on behalf of the people, he banned modern family planning methods in

[2] A letter from Dr. Kamuzu Banda to World Bank president, carried by the then minister of finance, Mr. Aleke Banda

the country. The ban included family planning and all the books on family planning in the country. The government of Malawi deported from Malawi the missionary doctors who provided the modern family planning services.

President Kamuzu Banda, a medical doctor by profession, knew the benefits of contraceptives. One would wonder why he did not use his political role to promote contraceptive use across the country. At this juncture, it is helpful to reflect on the forces influencing contraceptive use by the president. Dr. Kamuzu grew up in traditional settings adhering to his people's traditions, which detests modern contraceptives. Being the president does not negate the traditional bonds he shares and the tradition he has so long held. He was constrained to follow the traditional authorities, a form of bureaucracy, as argued by the German sociologist Max Weber (Kleinman, 2010). The generation that lived through the banned period is still alive and possibly even living with the same message of the misconceptions surrounding modern contraception. This indirectly impacts the uptake of contraceptives in the country.

In August 1981, the first-ever meeting on contraception was conducted in Malawi, which marked the beginning of a new era in modern contraceptive methods. This meeting was organized by the government of Malawi. Later in 1982, the child-spacing policy was formulated, and it was a significant milestone. The main agenda was to control population growth, which was growing so fast, by re-enforcing the traditional contraceptive methods with modern contraceptive methods.

In 1994, with the new multiparty system of government, the attitude towards contraceptive services changed. People started understanding the benefits of contraceptives, although at a slow pace. It continued during the reign of Dr. Muluzi and Dr. Bingu Wa Muthalika, who was the president from 2005 to 2012. Things again changed for the better when

Dr. Joyce Banda, the first female president of Malawi, came into power in 2012. She was very supportive and interested in a safe motherhood program, including family planning as a core component. Under her rule, she recognized the use of modern contraceptive services to adolescents by advocating for contraceptive use for people aged 15-24, which was an outstanding achievement.

Regular and effective use of contraceptive services has been shown to prevent adolescent pregnancies that have unwanted consequences. Chola et al. state that contraceptive services drastically reduced unwanted pregnancies in the Republic of South Africa (Chola, 2015). In Neno, contraceptive services among adolescents would reduce unwanted pregnancies, thereby reducing the number of adolescent girls dying of complications of labor and delivery.

I can't help but wonder if Jane Phiri would still be alive if she did not get pregnant at an early stage in life. If she had the agency to choose for herself, she would not have been taken victim by cultural norms. In my experience, if she were from a wealthy family background, her family would not have allowed her to be married off but to continue with her education and pursue her goals in life. Jane surely fell victim to poverty and the poor health system in Malawi and Neno in particular.

Part 2: ASSESSING BARRIERS OF CONTRACEPTIVE UPTAKE AMONG ADOLESCENT GIRLS IN A RURAL DISTRICT OF MALAWI

INTRODUCTION

Globally, adolescent (10-19-year-old) pregnancies have dropped, but it remains very high in sub-Saharan Africa. Malawi, a low-income nation with an adolescent fertility rate of 136 per 1,000 women (NSO, 2018 Malawi Population, and Housing Census Main Report, 2018), has the 12th highest adolescent pregnancy rate at 38%, and the second-highest in southern Africa after Mozambique at 42% (UNFPA). This indicates that roughly one out of seven girls will be pregnant before their twentieth birthday. Unfortunately, this high fertility rate is paired with a high maternal mortality rate of 439 per 100,000 live births (NSO, 2015-2016 Malawi Demographic and Health Survey Key findings, 2017). High adolescent fertility rates predispose adolescents to many unnecessary risks such as complications of pregnancy and childbirth.

Neno is a rural district in southwest Malawi with a population of 143,000. The vast majority of people living in this area lack electricity, and more than 70% live on less than $1.90 per day (NSO, 2015-2016 Malawi Demographic, and Health Survey Key findings, 2017). Of the Neno population, 35% are adolescents between 10-19 years, and 32% of the adolescent girls have had at least one live birth before 18 years old (MES, 2014). The total fertility rate for Neno is 6.2, much higher than the country's rate of 4.2 births per woman (MES, 2014).

Although family planning services are offered free of charge in all the health facilities and to all the people in Malawi, uptake of family planning remains low (Review of Adolescent family planning policies in Malawi, 2017). The unmet need for family planning is 52% for unmarried adolescents (10-19) and 22% for women aged 20-49 years (Review of Adolescent family planning policies in Malawi, 2017). Currently, contraceptive services in facilities in

Malawi favors married adults. There are no youth-friendly health services or youth corners in most Malawi facilities, including Neno District (Jayachandran, 2016). Contraceptive education is not discussed in local schools, including in primary schools where adolescents in most rural areas are present. It is regarded as a household taboo for adolescents, and this is mixed with poor community mobilization and low support from local leaders.

Contraceptive use decreases the total fertility rate, which reduces the exposure of adolescents to unwanted pregnancies. These unwanted pregnancies can lead to unsafe abortions (as it is illegal in Malawi to have an abortion at the hospital) as well as the general risks of childbirth complications, including maternal death (Chola, 2015). In addition to medical risks, there are social impacts of unwanted pregnancies such as economic standing and school dropout, leading to their career progression being thwarted, making them more vulnerable to poverty and exclusion. Despite these proven benefits of contraception, little is known about how many adolescents in Neno use contraceptives. Similarly, little is known regarding their perceptions of contraception and any barriers to access, including gender and societal factors, provider factors, service availability, and adolescent preferences.

To fill this gap, we conducted a mixed-methods study to identify the main barriers to contraceptive uptake among adolescent girls in Neno District, Malawi.

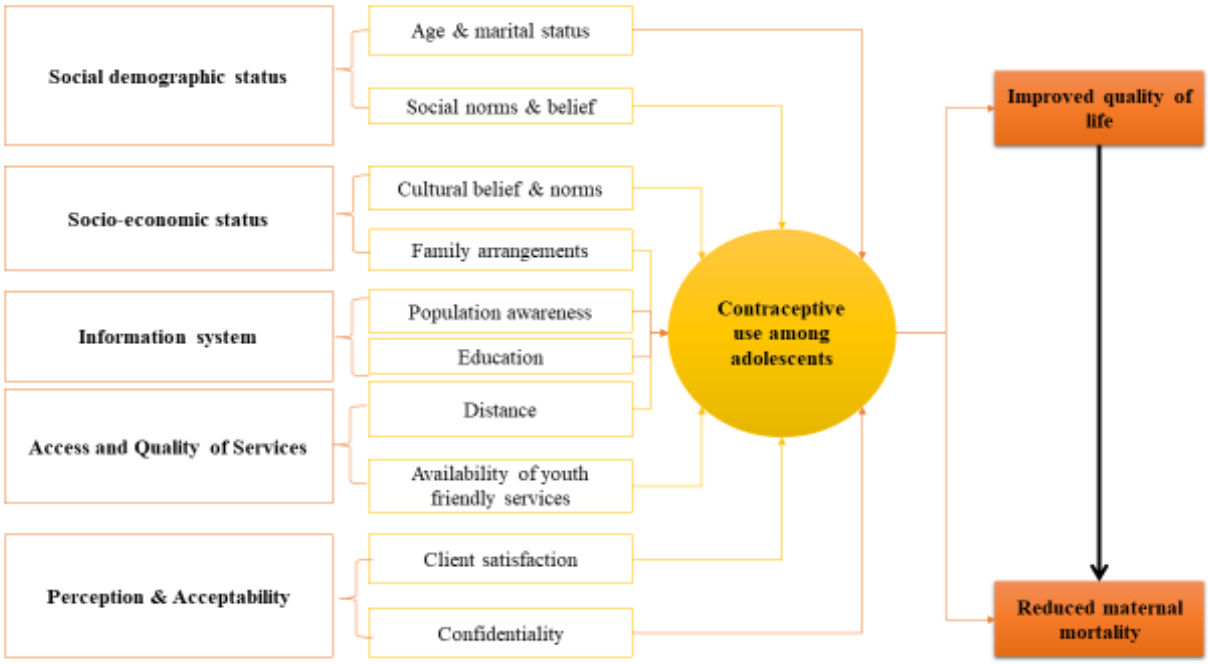

Figure 1: Conceptual Framework

METHODS

Study design

We used an explanatory sequential mixed-methods study design to assess uptake of and barriers to contraception in adolescents 10-19 years in Neno District, Malawi between 2019 and 2020. The explanatory sequential mixed-method study design has an initial quantitative phase followed by a qualitative phase explaining or informing the quantitative findings (Bowen, 2017).

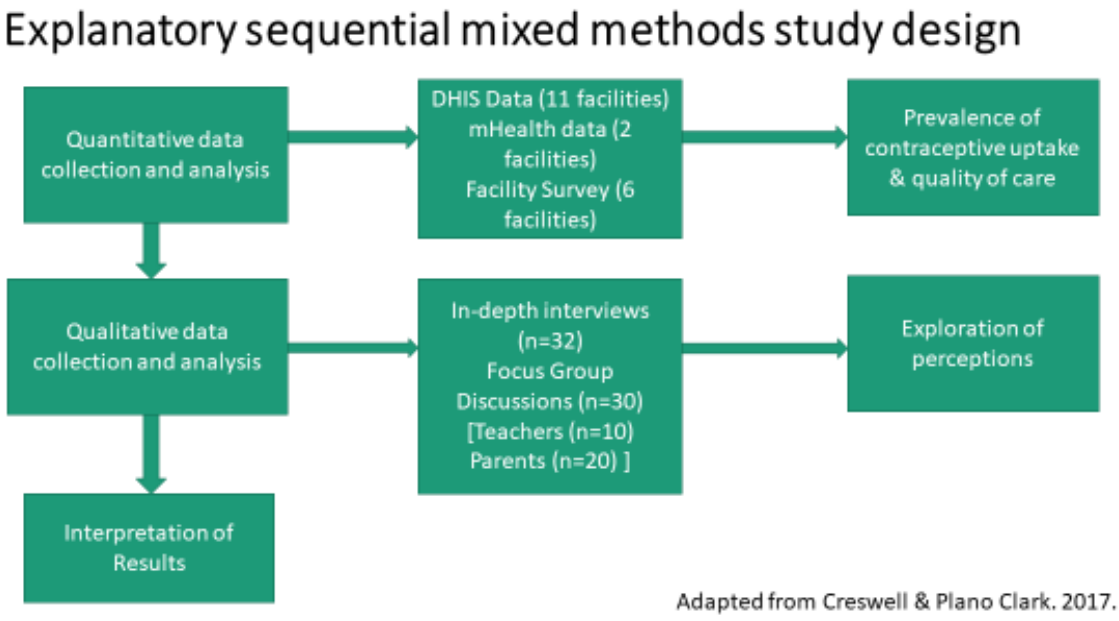

Figure 2: Explanatory Sequential mixed methods design

Study setting

This study was conducted in Neno District, Malawi, Southern Africa. Healthcare services are provided in 14 health facilities in the district. One is a district hospital that acts as the primary referral center, one community hospital, and 12 health centers. Adolescent family planning is offered free of charge apart from one health center – Neno Parish, a Catholic institution whose doctrine does not allow modern family planning use. Neno is a very hard-to-reach area with some remote health facilities even harder to reach. There is no tarmac road in Neno, making it even more difficult to access facilities during the rainy season.

Data collection for the quantitative component

Clinical Facility Data

Primary clinical data from facilities offering contraceptives was collected from monthly reports for 11 health facilities (this excludes Neno Parish health center, a catholic mission health facility that does not provide contraceptive services). De-identified data is disaggregated by age groups: 10-14 years, 15-19 years, 20-24 years, and above 25 years old. This data provided the estimated proportion of adolescent girls accessing modern family planning from 1 January 2019-31st December 2019 and from 1 January 2020 to 31 December 2020.

Facility Survey Data

We conducted a quantitative facility survey in six health facilities offering contraceptive services in the district to look at the quality of contraceptive services provided. Three health facilities from upper Neno and three health facilities from lower Neno were randomly selected. We used six fundamental elements of the quality of care. These included the choice of methods, the information given to clients, technical competence, interpersonal relations, follow-up/continuity mechanism, an appropriate constellation of services (Bruce, 1990). We defined the choice of method as the number of contraceptive methods offered on a reliable basis and the method common to a subgroup, including short-term, long-term, and permanent methods. Information given to the client was measured as the kind of information transferred to clients during health education, which leads the client to the specific choice of contraceptive method. Technical competency was defined as the clinical providers' competency in observing protocols and performing the procedures (e.g., IUCD insertion). Interpersonal relations look at how good the relationship is between the client and the provider. Could adolescents ask questions in private and have them confidentially answered? Follow-up was defined as how the appointments are

followed up with for continuation of care. The appropriate constellation of services was defined as situating the family planning services convenient and acceptable to clients, responding to their natural health concepts.

Household Level Data

We used the existing routine data through the mobile digital data collection tool (*m*Health) currently used by Community Health Workers in two health facilities' catchment areas (Neno DHO and Dambe Health Centre). This included the rate of uptake of contraceptives and types of contraceptives used, and household and socioeconomic factors as well as pregnancies for all women, including adolescents. All this data is captured in *m*Health tool in Neno District since early 2019. The health data is available in the Partners in Health (PIH) office through the Community Health Worker program's office, which shared the existing data.

Sampling and recruitment for the qualitative study

Prospective participants for the qualitative study were identified through purposive sampling. A purposeful qualitative sampling emphasizes in-depth, information-rich cases. Information-rich cases are those "from which one can learn a great deal about issues of central importance to the purpose of the research" (Patton, 2015). To ensure information richness and ensure variation within the sample, we included a variety of actors engaged in adolescent sexual health and contraceptive services.

Individual interviews were conducted with adolescent girls (n=20); to ensure variation with regards to age, we sampled in equal numbers across two age brackets (ages 10-14 and ages 15-19). Individual interviews were also conducted with key health personnel, including facility

managers (n=4) and service providers (n=4). To provide a community perspective, individual interviews were conducted with local leaders (n=4). All interview participants were sampled in equal numbers from Neno and Dambe in order to ensure geographic representation from both areas under study.

Focus Group Discussions (FGDs) were held with parents of adolescents – one in Dambe and one in Neno. Each FGD had ten participants. One FGD was held with ten teachers; four were from Dambe, and six were from Neno.

Participants

Category	Number	Activity
Adolescents girls 10-14 years	10 (5 in Neno DHO and 5 Dambe)	In-Depth Interview
Adolescent girls 15-19 Years	10 (5 in Neno DHO and 5 Dambe)	In-Depth Interview
Facility Managers	4 (2 in Neno DHO, 2 in Dambe)	In-Depth Interview
Service Providers	4 (2 in Neno DHO, 2 in Dambe)	In-Depth Interview
Local Leaders	4 (2 in Neno DHO, 2 in Dambe)	In-Depth Interview
Parents	2 (1 in Neno DHO, 1 in Dambe)	Focus Group Discussion
Teachers	1 (combination of teachers from Dambe and Neno)	Focus Group Discussion

Table 1: Qualitative participants

Qualitative Data Collection

Qualitative individual, in-depth interviews, and focus group discussions (FGDs) were carried out from August 2020 to November 2020 to identify barriers to adolescent contraceptive use. The qualitative data was collected from two catchment areas of Dambe Health Center and Neno District Hospital.

Individual interviews with service providers, facility managers, and local leaders were conducted by the first author. Individual interviews with adolescents were conducted by a research assistant, who was trained in qualitative data collection methods. All interviews

involving adolescents and local leaders were conducted in the local language of Chichewa and took place in a private, quiet setting of the participant's choosing. Interviews with facility managers and service providers were conducted in English and in a private area at the health facility. Interviews with local leaders were conducted in the community at a private place of the participant's choosing. All interviews lasted an average of one hour and were audio-recorded with permission. Each participant took part in a single interview; one participant in Dambe was both a facility manager and a service provider due to a staff shortage.

Separate interview guides were tailored for each participant group and covered the following main topics: (a) adolescents' perceptions of contraceptive services, (b) age-specific barriers to accessing contraceptive services (c) service provider's intentions to offer contraceptive services, including potential motivations and barriers, (e) community beliefs related to adolescent contraception and contraceptive use, and (f) the interplay between economic pressures and contraceptive use for adolescent girls. The guides were piloted locally prior to the beginning of the formal data collection exercise. Pilot transcripts were reviewed for quality by another member of the research team, and together with the first author, the initial guides were revised and finalized.

FGDs for parents and teachers was conducted by both the first author and the research assistant. FGDs lasted an average of one hour and were conducted in private areas within each community. All FGDs were audio-recorded with permission. FGDs were tailored to each FGD participant group and corresponded to the same core themes outlined above. The FGDs for parents were conducted right in the community, and the FGD for teachers took place at a primary school in Neno.

Demographic characteristics for qualitative study participants (n=62)

Characteristic		**n** (%)
Gender	Female	45 (73%)
	Male	17 (27 %)
Age	60 – 69	2 (3%)
	50 – 59	5 (8%)
	40 – 49	17 (28%)
	30 – 39	15 (24%)
	20 – 29	3 (5 %)
	10 – 19	20 (32 %)

Table 2: Demographic characteristics for qualitative study participants

DATA ANALYSIS

Quantitative Data analysis

Analysis of the data from the reports, health, and facility survey data was done with descriptive statistics, including frequencies and means. The contraceptive uptake ratio was calculated using the number of women captured in the reports (10–49 years) in the district as the denominator. The numerator was the number of women who accessed family planning services in the disaggregated age brackets of 10-14 years, 15-19 years, and above 20 years. To further understand the type of methods used, each method was calculated in frequency against the year's total as the denominator. These were then compared for rainy and dry seasons and the year 2019 and 2020 to further understand the district's seasons' impact and the impact of the COVID-19

global pandemic, respectively. Comparisons were performed using chi-square tests if more than five and fishers exact test if less than five.

Qualitative data analysis

We used thematic, conventional content analysis to analyze the qualitative data (Hsieh, 2005). Recordings from IDIs and FGDs were simultaneously transcribed and translated into English by the research assistant. A subset of transcripts was open coded by the first author in order to identify a set of emergent themes related to barriers to contraceptive uptake. These initial draft codes were reviewed with the qualitative member of the research team; discrepancies were resolved through discussion, and the updated codebook was piloted and finalized. We used Dedoose qualitative data management software version 8 to code the dataset. The resultant coded data was then analyzed inductively to identify a set of emerging themes, which were developed into an initial set of descriptive categories. These categories were described and supported with evidence from the dataset and reviewed by other members of the research team. Initial themes were expanded using an iterative analysis, resulting in four final themes described in the qualitative results below.

Mixed methods analysis

In keeping with an explanatory sequential mixed-methods study design, following the analysis of the quantitative data that revealed low uptake of contraception among adolescents, we tailored all qualitative data collection instruments to capture in-depth detail regarding factors that directly and indirectly shaped low rates of uptake in these communities. Following analysis of the qualitative data, findings from both datasets were integrated, and key areas of concordance emerged (Creswell, 2006). Qualitative findings highlighted the mechanisms that led to the low

uptake of contraception in the district. We further created a joint display to convey key areas of concordance (Guetterman, 2015); the integration of these findings highlights the cycle of pressures that lead to high rates of early pregnancy, and ultimately, increased suffering for adolescents (**see Figure 3**).

ETHICAL CONSIDERATION

Permission to conduct this research was obtained from (1) the Human Subjects Division of Harvard University, (2) National Health Sciences Research Committee (NHSRC)- the national ethics board in Malawi, and (3) Ministry of Health/Partners in Health Research Committee- the local committee governing research within Neno District, Malawi.

RESULTS

Quantitative Results

A total of 4,449 women of all ages accessed facility-based family planning services from January to December of 2019 in the Neno district (**Table 3**). Of the 4,449 clients, 3% were adolescent girls aged 10-14 years, 29.8% were adolescent girls aged 15-19 years, and 67.2% were women 20 years of age or above. One short-term method (Depo Provera) and one long-term method (contraceptive implant) were commonly accepted and accessed by clients of all age groups. Depo Provera was the most widely used family planning method in 2019, with 41.9% clients of all ages, 37.9% clients aged 10-14 years, 43.2% clients aged 15-19 years, and 41.6% clients above 20 years of age using it. This was seconded by a long-term method, contraceptive implant, with a total of 28.4% clients of all ages, 22% adolescent girls aged 10-14 years, 22.5% adolescent girls aged 15-19 years, and 31.2% clients above 20 years. Female condoms, Intrauterine Contraceptive Devices (IUCD), and tubal ligation were the methods least used

across all ages. In 2019, female condoms were used by 0.4% of clients of all age groups, 0 adolescent girls aged 10-14 years, 0.2% adolescent girls aged 15-19 years, and 0.6% clients above 20 years. IUCD was used by 2.9% of clients of all age groups, 0 adolescent girls aged 10-14 years, 1.6% adolescent girls aged 15-19 years, and 3.7% clients above 20 years. Tubal ligation was used by 3.1% of clients of all age groups, 0 adolescent girls aged 10-14 years, 0.2% adolescent girls aged 15-19 years, and 4.4% clients above 20 years.

In general, in 2019, adolescents less than 20 years were equally as likely to use Depo Provera as the method as women above 20 years. This was true with female condoms and emergency pills. But adolescents less than 20 years were more likely to use pills than older women above 20 years. Women above 20 years were more likely to use contraceptive implants, IUCD, and BTL than adolescents less than 20 years.

In 2019, a total of 2,875 women accessed family planning in the dry season, and 1,575 women accessed family planning in the rainy season **(Table 3).** The dry season in Neno runs from May to October, and the rainy season from October to April, each for approximately six months. On average, 64.6% of clients accessed the services during the dry season, and 35.4% of clients accessed it during the rainy season. Overall, Depo Provera (44.2% vs. 37.7%) and contraceptive implants (28.7% vs. 27.7%) remained the most commonly used methods in both dry and rainy seasons in all age groups. Overall, female condoms (0.03%) and emergency pills (2.5%) were the least used methods in the dry season, and female condoms (1.1%) and emergency pills (0.8%) were the uncommonly used methods in the rainy season in 2019.

Choice of method did not change due to the changes in season. For example, uptake of Depo Provera was equally the same for adolescents less than 20 years as compared to women above 20 years in both rainy and dry seasons.

Table 3: Women accessing Family planning from January to December 2019 in Neno District

Type of Contraceptive	**All age group N = 4449 N (%)**	**10-14 Years N = 132 N (%)**	**15-19 Years N = 1327 N (%)**	**20 years & above N=2990 N (%)**	**Comparing all adolescents to women >20 years (p-value*)**
short term					
Depo Provera	1866 (41.9)	50 (37.9)	573 (43.2)	1243 (41.6%)	0.593
Male condoms	614 (13.8)	38 (28.6)	279 (21.0)	297 (9.9)	**<0.001**
Female condoms	19 (0.4)	0 (0)	2 (0.2)	17 (0.6)	0.271*
Pills	337 (7.6)	14 (10.6)	123 (9.3)	200 (6.7)	**0.0146**
Emergency	86 (1.9)	1 (0.8)	28 (2.1)	57 (1.9)	0.8421*
Long term					
Implants	1262 (28.4)	29 (22.0)	299 (22.5)	934 (31.2)	**<0.001**
IUCD	131 (2.9)	0 (0)	21 (1.6)	110 (3.7)	**<0.001***
Permanent					
BTL	134 (3.0)	0 (0)	2 (0.2)	132 (4.4)	**<0.001***
Dry season					
Type of Contraceptive	**All age group N = 2876 N (%)**	**10-14 Years N = 48 N (%)**	**15-19 Years N = 824 N (%)**	**20 years above N=2004 N (%)**	**Comparing all adolescents to women >20 years p-value***
short term					
Depo Provera	1272 (44.2)	26 (54.2)	382 (46.4)	864 (43.1)	0.209
Male condoms	313 (10.9)	5 (10.4)	122 (14.8)	186 (9.3)	**<0.001**
Female condoms	1 (0.03)	0 (0)	0 (0)	1 (0.04)	0.933*
Pills	199 (6.9)	3 (6.3)	70 (8.5)	126 (6.3)	0.222*
Emergency	73 (2.5)	1 (2.1)	22 (2.7)	50 (2.5)	0.985*
Long term					
Implants	826 (28.7)	14 (29.2)	208 (25.3)	604 (30.1)	0.077
IUCD	99 (3.4)	0 (0)	18 (2.2)	81 (4.0)	0.053*

Permanent					
BTL	93 (3.2)	0 (0)	2 (0.2)	91 (4.5)	**<0.001***
Rainy season					
Type of Contraceptive	**All age group N = 1574 N (%)**	**10-14 Years N = 84 N (%)**	**15-19 Years N = 518 N (%)**	**20 years above N=972 N (%)**	**Comparing all adolescents to women >20 years p-value***
short term					
Depo Provera	594 (37.7)	24 (28.6)	203 (39.2)	367 (37.8)	0.325
Male condoms	301 (19.1)	33 (39.3)	157 (30.3)	111 (11.4)	**<0.001**
Female condoms	18 (1.1)	0 (0)	2 (0.4)	16 (1.6)	0.145*
Pills	139 (8.8)	11 (13.1)	53 (10.2)	75 (7.7)	0.198
Emergency	13 (0.8)	0 (0)	6 (1.2)	7 (0.7)	0.799*
Long term					
Implants	436 (27.7)	16 (19.0)	91 (17.6)	329 (35.5)	**<0.001**
IUCD	32 (2.0)	0 (0)	2 (0.4)	30 (3.1)	**<0.001***
Permanent					
BTL	41 (2.6)	0 (0)	0 (0)	41 (4.2)	**<0.001***
*p-value is generated using Fisher's exact test when individual cell count <5					

A total of 3,541 clients of all ages accessed facility-based family planning services from January to December of 2020 in the Neno district **(Table 4).** Of the 3,541 clients, 1.9% were adolescent girls aged 10-14 years, 33.4% were adolescent girls aged 15-19 years, and 64.6% were all women above 20 years of age. Depo Provera remained the most commonly used family planning method in 2020, with 44.6% clients of all ages, 55.1% clients aged 10-14, 51.8% clients aged 15-19, and 40.5% clients above 20 years of age using it. This was seconded by a long-term method, contraceptive implant with a total of 26.8% clients of all ages, 30.4% adolescent girls aged 10-14, 24.7% adolescent girls aged 15-19, and 27.8% clients above 20 years accessed the services in 2020. However, female condoms and emergency pills were the methods uncommonly

used across all ages 0.2% clients of all age groups, 0 adolescent girls aged 10-14 years, 0.3% adolescent girls aged 15-19, and 0.1% clients above 20 years used female condoms in 2020. 1.0%clients of all age groups, 1.4% adolescent girls aged 10-14 years, 1.2% adolescent girls aged 15-19, and 1.0% clients above 20 years used emergency pills in 2020.

Table 4: Women accessing Family planning from January to December 2020 in Neno District, Malawi

Type of Contraceptive	**All age group N = 3541 N (%)**	**10-14 Years N = 69 N (%)**	**15-19 Years N = 1184 N (%)**	**20 years above N=2288 N (%)**	**Comparing all adolescents to women >20 years p-value***
short term					
Depo Provera	1578 (44.6)	38 (55.1)	613(51.8)	927 (40.5)	**<0.001**
Male condoms	391 (11.0)	9 (13.0)	180 (15.2)	202 (8.8)	**<0.001**
Female condoms	7 (0.2)	0 (0.00)	4 (0.3)	3 (0.1)	0.515*
Pills	374 (10.6)	0 (0.00)	70 (5.9)	304 (13.3)	**<0.001***
Emergency	37 (1.0)	1 (1.4)	14 (1.2)	22 (1.0)	0.745*
Long term					
Implants	949 (26.8)	21 (30.4)	293 (24.7)	635 (27.8)	0.254
IUCD	96 (2.7)	0 (0)	6 (0.5)	90 (3.9)	**<0.001***
Permanent					
BTL	107 (3.0)	0 (0)	3 (0.3)	104 (4.5)	**<0.001***
*p-value is generated using Fisher's exact test when individual cell count <5					

During the COVID-19 pandemic in 2020, the overall uptake of family planning dropped significantly as compared to 2019. Overall, 3,541 clients accessed family planning in 2020 compared to 4,449 clients in 2019, indicating a 20.4% drop in the uptake. However, Depo Provera (44.6%) and Implant (26.8%) remained the most commonly accessed methods. Female condoms (0.2%) and emergency pills (1.0%) remained the least used methods in 2020.

Table 5 shows the results from the facility surveys. Contraceptives were generally available in the six health facilities studied **(Table 5)**. Emergency pills were only available in 2 (33.3%) facilities, and tubal ligation was available in just 1 (16.7%) health facility. All of the six health facilities surveyed had all of the medical examination equipment except the sterilization machine, which was available in 2 (33.3%) facilities. Although all the health facilities opened at 07:30 am, only 1 (16.7%) facility saw clients between 07:30 am to 08:30 am. The rest were available to see clients after 08:30 am.

Table 5: Facility survey conducted in six randomly selected health facilities in Neno, namely Dambe, Ligowe, Magaleta, Chifunga, Zalewa, and Lisungwi. (n=6) [3]

Item			N	%
Accessibility (Time)	What is the official opening time for this health facility?	Before 7:30am	0	0.0
		At 7:30am	6	100.0
		After 7:30am	0	0.0
	At what time did the first family planning client arrive today	Before 7:30am	2	33.3
		At 7:30am	0	0.0
		After 7:30am	4	66.7
	At what time was the first family planning client seen today?	7:30-8:30am	1	16.7
		8:30-9:30am	4	66.7
		After 9:30am	1	16.7
	At what time was the last family planning client seen today?	Before 12:00pm	3	50.0
		After 12:00pm	3	50.0
	What is the official closing time for this health facility?	12:00PM	0	0.0
		5:00PM	6	100.0
	How many days per week are family	1	4	66.7
		2	0	0.0
		3	0	0.0

[3] Adapted from Robert Miller's The Situation Analysis Approach to Assessing Family Planning and Reproductive Health Services, 1997

	planning services offered at this health facility?	4	0	0.0
		5	2	33.3
	Is there a sign announcing that FP services are available?	Outside building	0	0.0
		Inside building	0	0.0
		Both inside and outside the building	0	0.0
		No sign visible	6	100.0
Family Planning	Facilities offering family planning services		6	100.0
	Methods Available	**Short Term**		
		Depo Provera	6	100.0
		Male condoms	6	100.0
		Female condoms	6	100.0
		Pills	6	100.0
		Emergency	2	33.3
		Long Term		
		Implants	6	100.0
		IUCD	6	100.0
		Permanent		
		Tubal Ligation	1	16.7
	Other Services	Maternity care/delivery services (MCH/FP Unit)	3	50.0
		Maternity care/delivery services (Elsewhere)	2	33.3
		Postnatal care (MCH/FP Unit)	5	83.3
		Postnatal care (Elsewhere)	2	33.3
		HIV/AIDS counselling/IEC	6	100.0

		Treatment of incomplete abortion (MCH/FP Unit)	2	33.3
		Treatment of incomplete abortion (Elsewhere)	4	66.7
IEC materials and activities		Family planning	6	100.0
		Antenatal/postnatal care	6	100.0
		Delivery services	3	50.0
		HIV/AIDS	4	66.7
Health Talk	Who offers Health talk?	Clinician	6	0.0
		Nurse	6	50.0
		Health Surveillance Assistant	0.00	0.0
		Community Health Worker	16.67	16.7
	Type of health talk	Group	83.33	83.3
		Individual	100.00	100.0
Medical examination facilities		Sterilizing equipment outside MCH/FP unit (shared)	2	33.3
		Angle poise/gynecology lamps/torch	6	100.0
		Blood pressure machines	6	100.0
		Adult weighing scale	6	100.0
		Examination couch	6	100.0
Inventory		Sponge holding forceps	4	66.6
		Uterine sounds	4	66.6
		Specula	6	100.0
		Tenacula	3	50.0
		Disposable gloves	6	100.0

mHealth data **(Table 6),** which is collected by Community Health Workers with support from Partners in Health, revealed that from September 2019 to March 2020, only 2.6% of adolescent girls 10-14 years and 10.4% of adolescent girls aged 15-19 years were currently using family

planning in Dambe Health Center and Neno District Hospital catchment areas. With a total population of 13,767 in Dambe, the adolescents using family planning represent 3.5% of the population, whereas in the catchment area of Neno District Hospital, with a total population of 17,791, adolescents using family planning represent 3.1% of the population. Dambe had a higher rate of long-term methods (e.g., Implant) among adolescents, at 35.3% of the adolescents using family planning, compared to in Neno at 27.4%.

Table 6: Medic Mobile Data collected in Neno DHO and Dambe Health Facility catchment area

	10-14 years (n, %)	**15-19 years (n, %)**	**Comparing 10-14 years and 15-19 years *p-value**
Facility			
Dambe	341 (39.6)	4420 (44.7)	0.004
Neno DHO	521 (60.4)	5473 (55.3)	0.004
Current user (% yes)	23 (2.7%)	1027 (10.3)	0.001
Type of contraception			
Depo Provera	15 (65.2)	636 (61.9)	0.005
Implant	3 (13)	284 (27.7)	*0.005
IUCD	0 (0)	23 (2.2)	*0.005
Pills	3 (13)	81 (7.9)	*0.005
Tubal Ligation	2 (8.7)	3 (0.3)	*0.005
*p-value is generated using Fisher's exact test since we have individual cell count <5			

Qualitative Results

The qualitative component of the research yielded four thematic categories that explore barriers to modern contraceptive use among adolescent girls in Neno: (1) Sources of information and support for adolescent sexual health (2) Paths of possibility available to girls in the

community, (3) Provision of services that meet adolescent needs and (4) impact of COVID-19. These categories are presented in more detail below.

A. Sources of information and support for adolescent sexual health

1. Traditional forms of community-based teaching have dissolved

There is no longer a formal agreed-upon group responsible for teaching adolescents about sexuality and sexual health. In previous generations, adolescents passed through initiation ceremonies that marked the transition to adulthood. These ceremonies were carried out by designated people or "counselors" in the community who taught adolescents about sex and sexual health. Our participants noted that adolescents were very adherent to the teachings learned during traditional initiation ceremonies, and early pregnancy had not been a problem at that time.

Without these formal ceremonies in place, it is no longer clear who in the community is responsible for delivering this message. Different leaders - such as village heads and church leaders - presumed that the other is taking responsibility for teaching and enforcing 'responsible attitudes' among adolescents. Local leaders acknowledged that this confusion led to a gap in adolescent's education and voiced concern that youth was no longer receiving their first messages about sexuality from trusted adults.

> *"Things have changed these days, and in the time past, boys could be counseled, and that made us have fear and that we could never touch the woman knowing the aftermaths of touching ladies. And in our time you could never find a woman who got married at a young age like these days. That discipline is a rare ingredient these days. Nowadays, the initiation ceremonies are no longer existing, and that young teenage girl is sent to the church to be counseled of which is not taken seriously. Even in time past we could share*

same room without doing anything but these days, you'll find teenagers without discipline" Local leader 1-Neno

"In time past men were few and during our generation, we had so many activities like music and local dances where we could spend time with girls the whole night dancing and never had in mind about proposing them. People could also create some stories saying that girls had some problems which once you have sex with them then all her problems could be transferred to you and this made us not to get so close to them in fear that something strange would happen" Local leader 2-Neno

2. Media consumption

In this vacuum of information about sexual health, adolescents are turning to media and what they can learn on their cell phones. Parents and local leaders were very concerned that adolescents were exposed to media at an early age. They believed that adolescents would experiment with sexual activities early because this is what they saw in the popular media. They contrasted this with the more traditional teachings that were offered by parents or the community. Those adults concerned about this behavior felt that the problem was exacerbated because they were exposed to these ideas early. Whereas previously, they would not learn about sexual health until they were older. Younger adolescents have access to media that allows them to engage with these ideas from what some participants call a "tender age." They were concerned that they are not mature enough to handle these influences; they attribute this lack of maturity to a lack of control. Adults do not mediate consuming media at an early age and the message they receive. The view from parents and other adults in the community is that the media is driving adolescents to engage in sex at an earlier age.

"They always go but what they are counseled is contrary to what they see, and that counseling from their parents is not taken seriously for it is no longer in agreement to what they watch and they have adopted the western culture" Local leader 2-Neno

"*Sometimes they only have the feeling of experimenting on premarital sex some because of what they inherited from their parents and sometimes what they watch on Television which forces them to indulge in malpractices"* Female teacher- Neno

"We had the books, and we used to get to know these things at an advanced age, unlike today where they get to know all of this at a tender age. They now start attending school at a very young age, thereby exposing them to the things that were supposed to be taken by a somehow mature person. It also happens that our children are also exposed to media. They watch everything concerning pornography which has made their minds corrupt, and even it becomes difficult for someone of this age like mine to exercise self-control. With time due to exposure to these things, the boys will take advantage of a girl child by watching these things to develop feelings which in the end will make them experiment on sex" Female parent-Neno

3. Lack of time to provide adequate counseling

Our study's health workers were concerned that they did not have a voice in teaching adolescents about sexual health; they were interested in counseling them but explained there isn't a system in place for them to educate adolescents in the communities. HCWs are also overwhelmed with work in the clinics, and so even when adolescent girls come to the clinics, there is no time to provide adequate counseling to the adolescent. Despite having good quality

information about sexual health, they often do not have the time to sit with the adolescents and share it with them. On occasions when they have time to counsel adolescents, health workers indicated that they had success in coaching adolescents to adopt appropriate behaviors for sexuality and reproductive health, whether that included abstinence or reliable forms of contraception.

> "*I remember one time we had such scenario where one adolescent came [to the facility], and we started to ask her some questions…we asked her 'Is your mother aware of this issue?' and she said 'No.' Then, in the end, we talked to her about the good and the bad of using contraceptive services, so the best thing that is required is abstinence and if it fails, better to try plan B which comes in using of contraceptive methods. So, in the end, she was convinced and said that she will start practicing abstinence. As I am talking now, she is in form four, and she seemed to have been helped with the help that we offered to her in the first place*" Facility manager 1-Dambe

> "*This other day, I approached three girls within the age group of 15 to 18. They came to access family planning services but were unsure of which method would be suitable for them. I counseled them on the benefits of family planning and all the methods and asked them if they were still interested in the methods. I should get one for them, and then they decided to have oral contraceptives. I told them that this one is supposed to be taken daily and not good to be taken among all their friends, and in the end, they were fully persuaded and got the Depo-Provera while the other got an implant.*" Service provider 1-Neno

B. Paths of possibility available to girls in the community

1. Pressure from peers to conform with ideals

Within adolescent groups, pregnancy and motherhood are something that peers highly value. Adolescents feel pressure to experiment sexually, but there is also pressure to conform to norms that are admired among adolescents. Participants explained that their adolescent peers view girls who have babies as role models. Furthermore, engaging in sexual relationships with older men afforded girls the opportunity to access material goods valued in their peer groups.

> "*For at one time, I had a friend who was into sexual practices, and my sister forewarned me about the danger of premarital sex in that one does not continue with her school. She warned me not to be pressured and do as others are doing in the village of having babies before their time.*" 13 years old adolescent Dambe

> *"Peer pressure makes them follow and do what friends are doing - whether be it good or bad. In this case, they follow the idea of getting things from the older rich men."* Facility manager 2-Neno

2. Need for real role models

Parents and adults in the community express that they want girls to have access to 'real' role models, women who have completed their schooling, and have careers. Community members understand that once a girl has a baby, she will not further her education and have a career. They, therefore, want adolescents to refrain from having babies at a young age and believe that seeing older women with successful educations and careers can help girls make a different choice. While they express a desire for these kinds of role models, they lament that there are no highly trained women living in their community. They want to have doctors, nurses,

engineers, teachers, and other women be able to return to their community and act as role models, so adolescents can believe that these are possible pathways for them to follow.

> *"When it comes to girls, they always look up to their peers and find it possible that they too can do likewise the same. We have many girls who are having babies, so other adolescents look up to them instead of having real role models like nurses, teachers."* Male parent-Dambe

> *"Yeah, so I wanted to say that this time around, those children do see their role models and end up avoiding premarital sex, unlike in the time past where it was tough to have a role model, and many of them could not see the importance of school unlike these days many girls do go to schools and some are working."* Male Teacher-Neno

3. Poverty as a driver for early marriage

Participants acknowledged that poverty was a challenge facing many families in their communities, directly affecting girls becoming sexually active and pregnant at a younger age. Some girls were forced into early marriage because they sought financial help from older men to support their families. In many cases, these marriages to older men are short-lived. Young adolescent girls give birth to the child, are forced to return to their families, and the older men then end their financial support for the girls. This exacerbates the dire financial situation for the families, creating a cycle of poverty.

> *"Married men…are attuned to adolescent girls, and they will do anything by persuading her with money. Seeing that she has many things to be taken care of [monetary needs], so the girl will accept the money and end up being used and the meantime contracting sexually transmitted diseases and pregnancy."* Female parent Dambe

"Grown-up men have the lifestyle of having sex with teenage girls, and they take advantage of them because of poverty and at the end being used by such men." Local leader 2 Neno

"Mostly, what brings about pregnancies is poverty, which forces them to engage in premarital sex to make ends meet, and they cannot decide on their own as to what will happen next." Female teacher-Neno

4. Perceived link between early contraceptive use and barrenness

Adolescents, parents, and local leaders expressed concern that individuals living in their communities associated uptake of contraception early with infertility. In some cases, adults used "stories" that linked early contraceptive use with bareness as a way of steering young girls away from contraception. These rumors influenced when adolescents began using contraception, with many only using contraception after their initial pregnancy. Parents and older relatives were protective of adolescents' future fertility and cautioned them against contraceptive use.

"Women always bring hindrances for the adolescent girls not to access the contraceptive services because girls are always scared with the stories that those who use contraceptive methods end up being barren and in the process causing the adolescent girls have a negative mentality on the contraceptive service.". Male parent Dambe

"Mostly, they don't agree in seeing an adolescent girl who has never given birth to start adopting the contraceptive services as this will make her barren in the near future" Female parent-Dambe

"*I think maybe it is because the adolescents themselves have no access from their parents to have the contraceptive services. Secondly, the myths and misconception which stand against the knowledge of contraceptive services [which] is common among the elderly people*" Service provider 2 Dambe

Many adolescents shared this concern and were reticent to use contraceptives because they feared that it would leave them barren. Adolescents preferred to adopt an approach of "self-control" rather than risk infertility which they associated with early contraceptive use. This led to adolescent pregnancies. One adolescent explained the rumored link in this way:

"Those of us below 20 need to exercise self-control; it is rumored that once you use contraceptive services before time, it results in barrenness." 16 years old Adolescent Neno

C. Provision of services that meet adolescent needs

1. Lack of private space

Adolescents are concerned that their privacy will not be maintained if they visit the clinic. They want to keep their visit to the clinic private because most adolescents do not seek their parents' consent to visit the health care center for contraceptive services. Unfortunately, the clinics are set up in a way that makes their attendance visible to anyone visiting the clinic. Adolescents fear that they will be recognized by other community members who will then report the purpose of their visit back to their families. Lack of privacy makes adolescents hesitant to pursue clinic-based services.

"Depending on the setting of this facility, we have not been considerate enough to approach the adolescents, which makes them afraid of what will happen…. Suppose

someone spots them, their parents will learn the whole story. So at least if we can have a separate room where adolescents should be helped - not only on the issue of contraception but some other challenges which they experience…this will give them the courage to come to the hospital without people having in mind that maybe she's coming for contraceptive methods and this will help to see a change in the uptake of contraception" Facility manager 2-Dambe

"It depends on the health workers, and once you recognize an adolescent, then you help that one immediately so that they are not with elderly people who like mocking them" Service provider 1-Neno

2. Attitude of health care workers toward adolescents

Some service providers are not comfortable offering contraceptive services to young adolescents. While they express comfort in counseling adults, they do not feel that it is right for young adolescents to engage in sex. They, therefore, dissuade adolescents from using contraception and counsel them to accept abstinence.

"I sometimes think for the person [adolescent] to be open and say this is what I want, it becomes much difficult… When they see a particular doctor… I approach that person asking for condoms, he or she will ask me a reason why I want them so I would rather go and practice unprotected sex rather than being embarrassed by the doctor, so generally, it's our attitude" Facility manager 2-Dambe

"Another thing is to do with taking part amongst the service providers in helping the adolescents whenever they are coming to access the services, unlike criticizing him or her

that 'why at that age are you coming to access the services?' [We] should at least give him or her good direction" Facility manager 1-Dambe

"We need to be conscious with the youths as health workers by treating our clients with respect and dignity. Provide them with the right information. In the long run, after experiencing some problems, they should not hesitate to come and seek assistance" Service provider 1-Neno

3. Lack of adolescent-friendly services

While the government acknowledges youth-friendly health services as a goal, health workers and managers in our study lamented that there are very few youth-friendly health services available in the district. This makes it difficult for adolescents to access contraceptive services. Participants explained that in-clinic services such as youth corners would encourage adolescents to seek services.

"Most young people have a fear of meeting with their relatives in the process of trying to access the contraceptives, so the best way is to have special structures like youth clubs where they can access these services. The issue of empowerment should also be looked into it to encourage many youths to access these contraceptive services" Facility manager 1-Dambe

"A lot [could] be done - having more time to increase sensitizing our communities for people to have more information, embarking on youth corners that can assist more youths. For in Neno we have 15 health centers if we can also provide youth-friendly services in outreach clinics which can also assist more youths," Facility manager 1-Neno

Participants also indicated that outreach programs that partner with local schools and youth clubs could promote education and delivery of contraceptive services to adolescents within their communities. Facility managers highlighted the role that trained youths can play in educating their peers and enhancing uptake.

> *"Youth-friendly services to exercise capacity building to refute their cultural beliefs and we equip them with the knowledge to change their attitude towards the contraceptives. The other thing is to set aside time to meet with youths to provide services; there is also this program where we have youth community-based program where youths are trained and provided with contraceptives, and they are within the community, and their friends can access services from them, and we have the Youth Community Based Distribution Agents"* Facility manager 1-Neno

D. Impact of COVID-19

Our quantitative data indicated that while COVID-19 did not impact contraceptive stocks, the pandemic negatively impacted the number of adolescents visiting health facilities. Facility managers indicated that fewer adolescents reported to the clinics because they were afraid of contracting COVID-19. They also noted that social distancing measures also halted outreach activities, as community gatherings were no longer taking place. Parents expressed concern that lockdown measures interrupted adolescents' normal activities, and they were concerned that this 'idle" time at home led to increased sexual activity for adolescents.

> "*We had family planning services, but due to global pandemic, COVID-19, we put to a stop on outreach clinics but the good thing we are planning to resume such services to captivate more clients*". Facility manager 1 Neno

"This pandemic had affected many things in that before it came we could assist 700 people, but now the figures are not the same for people had a fear of contracting the COVID-19". Facility manager 2 Neno

"*With the coming of covid-19, the social gatherings are no longer there, making it difficult for them to learn [about contraception]*". Facility manager 2 Dambe

"*When it comes to a number of pregnancies among the adolescents, honestly speaking, we have many of them…With the coming of a global pandemic of coronavirus, the cases of pregnancy have been rising because of just staying idle at home, and among the age group of fourteen and eighteen who seem to register higher percentage of pregnancy. Even now, if they were to say that schools will be opened by next week, at least three-quarter of girl children will not turn up*" Female parent-Dambe

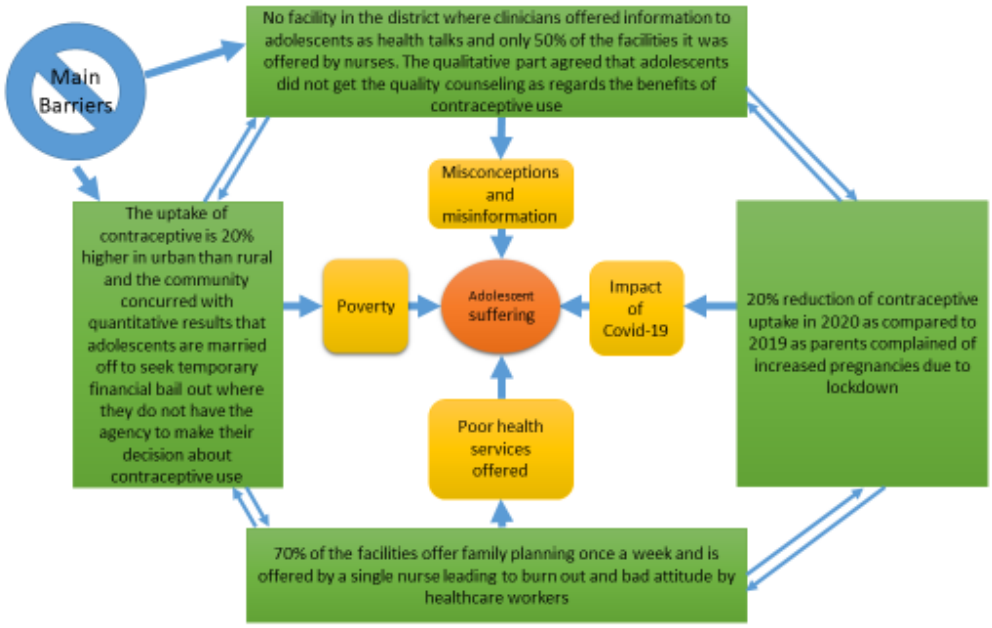

Figure 3: Joint display of the adolescent pregnancies leading to the cycle of suffering

DISCUSSION

We identified four main multi-sectorial barriers to adolescent contraceptive uptake that are inadequately addressed by existing programs in Malawi. They include the dissolution of trusted, accurate, and appropriate sources of information and support for adolescent sexual health. This is followed by limited educational opportunities and pressure to conform to young motherhood ideals leading to family planning uptake only after pregnancy. Lack of privacy, abstinence-focused messaging, and lack of adolescent-friendly services inhibit clinic-based services' use and trust. And fourthly, the negative impact of the global COVID-19 pandemic, which has generally seen a drop in the uptake of contraceptives in the district.

In Malawi, pills and male condoms are the only types of methods distributed in the community, but the rest are hospital-based. For the methods distributed in the hospital to be accepted by adolescent girls, there is a need for trust between health care workers and

adolescents. Our participants reported that a lack of trust and privacy mainly forces adolescents not to use contraceptive services. A similar study was conducted in Southeast Nigeria, where lack of privacy and confidentiality led to adolescents not accessing contraceptive services (Ezenmaka, 2020). It was mentioned that lack of privacy between the provider and the adolescent was one barrier to access contraceptive services. It was noted that adolescents were always shy when it comes to contraceptive services and would not want to be seen by people from the same community, whether the other party would report her to parents or not. Lack of privacy forces adolescents away from contraceptive services as they feel out of place and judge by adults seeking similar services, which happens to even high-income countries like the United States of America (Fuentes, 2019).

Despite the availability of almost all the methods in the health facilities in the district, there is a disparity in the uptake of the methods, with Depo Provera being used the most. The health system has to work on more comprehensive and broader access, including types. In a study conducted in the United States, improvement and inclusion of long-term reversible family planning methods were very effective for adolescents (Kavanaugh, 2013).

Although contraceptive services are free of charge in Malawi, an adolescent girl's decision to access the service is guided by financial and social implications surrounding them with direct effects on their daily life. Poverty is a pervasive driver that underpins many of these factors and directly results in short-lived, early marriages between young girls and older men. Like in Kenya, adolescents attributed non-use of contraceptive services to poverty (Mumah, 2020). Adolescents engaged in sexual activities with both boys and older men to support themselves with basic life needs, including food, clothing, toiletries, and even education support. This primarily is due to adolescent girls being unable to decide on their own whether to use or

not to use contraceptives but being guided by those who support them financially. In Bangladesh, even married adolescent girls could not make their own decision regarding contraceptive services. Rather, the decision was made by people who were financially stable and supporting the family, including fathers-in-law (Shahabuddin, 2016).

Education played a significant role in those adolescents sent to school had a higher chance of making good and informed contraceptive services choices than those who did not attain any education. However, other studies discovered that in some impoverished countries where poverty is very high, but with excellent national programs, which were also multi-sectoral, the uptake of family planning in adolescents was excellent. In Kenya, for example, the uptake of adolescent contraceptives increased due to educational attainment by adolescents in a poor rural community (Muchache, 2018). The government invested much of its support in sending adolescents to school, which impacted contraceptive services' general acceptance. In Ghana, the uptake of contraceptives increased with increased education attainment (Nyarko, 2015). Educated adolescents were more likely to use contraceptives than their uneducated counterparts.

The lack of active adolescent-friendly services in the district hurt the accessibility of contraceptive services by adolescents. Even though most of the six facilities had a choice of methods, there was no private space for counseling which led to adolescents shunning contraceptive services for fear of being seen by the community members. Robust adolescent-friendly services have proven to be very effective in increasing the uptake of contraceptive services in adolescents. According to the WHO, adolescent-friendly services must be "accessible, acceptable, equitable, appropriate, and effective." In a systematic review involving fifteen papers from different countries, including sub-Saharan Africa, East Asia, the results showed increased contraceptive services among adolescents where providers were trained and

were actively working as youth-friendly providers. Adolescents are attracted to such services (Lindsey, 2014). Ochako R et al. reported that the community could be involved by forming youth corners where adolescent volunteers teach and counsel fellow adolescents in sexual and reproductive health services, including contraceptive services (Ochako, 2015). In Nigeria, the unavailability of adolescent-friendly health services further widened the gap between adolescents who use or do not use contraceptive services (Ezenmaka, 2020). Adolescents are additionally referred to a health facility to access the services. This is also supported by a study recently conducted in Nsanje District in Malawi, where youth corners significantly impacted contraceptive services in the district (Makwinja, 2021).

Myths and misconceptions about the use of contraceptives before the first pregnancy could lead to barrenness are one of the misconceptions noted in this study. The finding was striking, as it showed that younger adolescents were particularly vulnerable to being dissuaded from contraceptive use by community members and women in particular. In Kenya, the belief that contraceptives caused infertility had a negative impact on the uptake of contraceptive services in Mombasa (Sedlander, 2018).

The COVID-19 pandemic had adverse effects on the uptake of contraceptives in the district. Out of fear of contracting the COVID-19, adolescent girls decreased uptake of contraceptive services since most of the district's adolescents use short-term family planning methods like Depo Provera. There is also a shift of attention in most aspects from other sexual reproductive health services to combating the COVID-19 pandemic. A narrative review conducted in Brazil showed the impact of COVID-19 on contraceptive use. Most women were unable to visit the health facilities, which increased the country's rate of pregnancies to nationally imposed lockdowns (Ferreira-Filho, 2020). Although a study conducted in Burkina Faso and

Kenya showed, the COVID-19 pandemic had no impact on women on Long Term Reversible Methods, demanding them to visit the facility after three years above (Karp, 2021).

The study's strength is that qualitatively, many stakeholders were interviewed and were gender-balanced like male and female teachers, male and female parents, male and female local leaders, male and female facility in charges, and male and female service providers.

Limitations of this study included that no qualitative data was collected from adolescent boys. We failed to hear the adolescent boys' voices and their roles/contributions in low uptake of the contraceptives. Another limitation was that, although the contraceptives were available in all the health facilities, we could not establish the reasons in the disparities as to why some methods were more commonly used than the others. An additional limitation was the geographically small footprint and a small number of facilities for the quantitative results for generalizability.

CONCLUSION

In conclusion, much effort is needed to provide effective and culturally acceptable interventions to increase family planning uptake in Malawi. These interventions could include having more educational programs that adolescents can access without any hindrances. Also, revising the educational materials offered to adolescents from being abstinence-oriented only to a more complex and informative. The Ministry of education in Malawi has to revise the education policy on contraceptives use in adolescents from being in comprehensive sexuality education to a more comprehensive and educative. Malawi's government is needed to put much effort into moving from having an excellent policy on youth-friendly health services theoretically to having it in actual practice.

Adolescent economic empowerment is of paramount importance as girls will be able to make decisions as regards their future not being influenced by poverty. Continuous community engagement would be highly recommended so families could continue supporting adolescent girls so they can be kept in schools and reach their goals.

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