

Original Research Report

Evaluating the Impact of Healthcare Access on Maternal and Child Mortality in a Rural Region of Myanmar

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Abstract: This study evaluates the impact of healthcare access on maternal and child mortality rates in the rural region of Kayin State, Myanmar, where disparities in healthcare services significantly affect vulnerable populations. Utilizing a cross-sectional study design from February to July 2024, the research employs both quantitative and qualitative methodologies. Quantitative data is gathered from government health records and local healthcare facilities, including maternal and child mortality rates, healthcare facility availability, and healthcare worker distribution. Qualitative insights are obtained through semi-structured interviews with healthcare providers, mothers, and local stakeholders, focusing on barriers to healthcare access. The findings reveal alarming maternal mortality rates of 250 per 100,000 live births and child mortality rates of 80 per 1,000 live births in rural areas, compared to urban counterparts. Major barriers identified include geographic isolation, economic challenges, and cultural factors limiting healthcare utilization. This study underscores the urgent need for targeted interventions to improve healthcare access in rural communities. Future research should investigate longitudinal impacts of healthcare interventions and the effectiveness of health education programs to further understand and mitigate healthcare disparities in rural Myanmar.

Keywords: Child Mortality, Healthcare Access, Health Disparities, Maternal Mortality, Rural Healthcare.



1. Introduction

Maternal and child mortality remain critical public health concerns globally, with particularly alarming rates in low- and middle-income countries. Myanmar, a Southeast Asian nation, continues to face significant challenges in improving maternal and child health outcomes. Recent data indicates that the maternal mortality ratio in Myanmar is approximately 250 deaths per 100,000 live births, while the under-five mortality rate is 46 per 1,000 live births [1]. These figures are notably higher in rural areas, where healthcare infrastructure is lacking and access to essential maternal and child health services is limited [2].

The disparity in healthcare services between urban and rural areas of Myanmar exacerbates the situation. In urban regions, healthcare facilities are more readily available, staffed by trained professionals, and equipped with modern medical technology. However, rural regions, where 70% of Myanmar's population resides, face a severe shortage of healthcare workers, limited medical supplies, and inadequate transportation infrastructure [3]. This urban-rural divide is a significant factor contributing to the higher mortality rates observed in rural populations, as many women and children cannot access timely and adequate care during critical periods [4].

Access to healthcare is a fundamental determinant of health, particularly for maternal and child health outcomes. In rural Myanmar, various barriers prevent women from receiving essential healthcare services, including geographic isolation, financial constraints, and cultural norms [5]. Pregnant women in these areas often deliver at home without skilled birth attendants, leading to preventable complications and deaths. Similarly, children in rural regions face higher risks of malnutrition, infectious diseases, and poor health outcomes due to inadequate healthcare access [6].

The importance of healthcare access in reducing maternal and child mortality has been well-documented in global health literature. Studies have shown that increasing access to skilled birth attendants, improving prenatal and postnatal care, and providing vaccinations significantly reduce maternal and child mortality rates [7]. However, in Myanmar's rural regions, these interventions are often unavailable or underutilized due to logistical and socio-economic challenges [8]. Addressing these gaps is crucial to improving the health outcomes of mothers and children in these vulnerable areas.

Given the severity of the problem, it is essential to evaluate the impact of healthcare access on maternal and child mortality in rural Myanmar. By understanding the specific challenges faced by these communities, targeted interventions can be designed to improve healthcare delivery and reduce mortality rates. This study aims to assess the availability and utilization of healthcare services in rural Myanmar and examine their correlation with maternal and child mortality.

In conclusion, studying the relationship between healthcare access and maternal and child mortality in Myanmar's rural areas is of paramount importance. The findings from this research will provide valuable insights into the current state of healthcare services and identify opportunities for policy interventions to enhance healthcare access and improve maternal and child health outcomes in these underserved regions [9].

2. Literature Review

2.1. Global Trends in Maternal and Child Mortality

Maternal and child mortality rates remain significant global health concerns, with varying trends and contributing factors across different regions. Globally, maternal mortality has declined by approximately 38% between 2000 and 2017, largely due to advancements in healthcare access and maternal care services [10]. However, disparities in maternal mortality persist, particularly in low-income countries, where over 90% of maternal deaths occur. These disparities are influenced by factors such as socioeconomic status, healthcare access, and the availability of skilled birth attendants [11]. Child mortality rates have also shown improvements, with a global reduction of 59% from 1990 to 2019, but progress remains uneven across regions [12].

In Southeast Asia, maternal and child mortality rates have followed similar global trends, though some countries, including Myanmar, lag behind in achieving significant reductions. The region has seen an average maternal mortality ratio (MMR) of 152 deaths per 100,000 live births in 2020, but countries like Myanmar continue to report MMRs above 200 per 100,000 live births [13]. Contributing factors in this region include rural healthcare infrastructure deficiencies, limited access to skilled healthcare professionals, and cultural practices that hinder maternal healthcare utilization. In Myanmar, for instance, rural populations experience significant difficulties accessing antenatal care and skilled birth attendants, resulting in preventable maternal deaths [14].

A key contributor to both maternal and child mortality is the lack of skilled healthcare personnel. The World Health Organization (WHO) emphasizes the critical role that skilled birth attendants play in reducing maternal mortality, yet in rural Myanmar, these professionals are scarce [15]. Studies indicate that the presence of skilled health workers during childbirth can reduce maternal mortality by up to 20%, highlighting the importance of improving healthcare access in underserved regions. Additionally, the provision of essential newborn care and vaccination programs are crucial for reducing child mortality rates, especially in rural and impoverished areas where healthcare services are often under-resourced [16].

Geographical isolation is another significant barrier to healthcare access in rural Southeast Asia. Myanmar's rural communities are often located in hard-to-reach areas, which exacerbates the challenges of delivering essential healthcare services. The limited infrastructure, including poor road networks and transportation systems, hinders timely access to emergency obstetric care, contributing to high maternal and child mortality rates [17]. This situation is worsened by seasonal flooding and natural disasters, which further limit access to health facilities and increase the risk of maternal and child mortality.

Socioeconomic factors also play a crucial role in determining access to healthcare in Myanmar and similar low-income countries. Poverty, illiteracy, and cultural beliefs can prevent women from seeking care during pregnancy and childbirth, often leading to home births without professional assistance [18]. Studies conducted in rural Myanmar reveal that many women rely on traditional birth attendants due to financial constraints and cultural preferences, even though these attendants may lack the skills to manage childbirth complications. Such practices significantly contribute to the high rates of maternal and child mortality in these regions.

Efforts to address maternal and child mortality in Southeast Asia have focused on expanding healthcare access, particularly in rural areas. Programs aimed at training midwives, improving healthcare infrastructure, and providing financial incentives for seeking skilled care during childbirth have shown promise in reducing mortality rates. However, further investments are needed to scale up these interventions and ensure that rural populations in Myanmar and other Southeast Asian countries have equal access to life-saving healthcare services [19].

2.2. Myanmar's Healthcare System

Myanmar's healthcare infrastructure, particularly related to maternal and child health, has seen significant changes in recent years, yet substantial gaps remain. The healthcare system is primarily structured through the Ministry of Health, which oversees both urban and rural healthcare services. However, the majority of healthcare resources, including skilled healthcare professionals, are concentrated in urban centers, leaving rural areas underserved [19]. This urban-rural divide is especially critical in maternal and child health services, where access to prenatal, childbirth, and postnatal care remains limited in rural regions [20].

The government has introduced several policies aimed at improving maternal and child health outcomes. These include the National Health Plan (2017–2021), which seeks to expand access to essential healthcare services for all populations, with a specific focus on maternal and child health [21]. One key initiative under this plan is the Maternal and Child Health (MCH) program, which focuses on reducing maternal and child mortality through improved access to skilled birth attendants, immunization programs, and antenatal care services [22]. However, despite these policy efforts, implementation in rural areas has been slow due to logistical challenges, insufficient funding, and a lack of healthcare personnel [23].

In rural Myanmar, healthcare infrastructure is often characterized by a scarcity of well-equipped health facilities. Many rural health centers lack basic medical supplies, clean water, and proper sanitation, which are essential for safe deliveries and newborn care [24]. The shortage of skilled healthcare workers, particularly midwives and doctors, further exacerbates the challenges of delivering maternal and child healthcare. Studies have shown that the presence of a skilled birth attendant can significantly reduce maternal mortality, but in many rural areas of Myanmar, women are forced to rely on traditional birth attendants who may not have the necessary skills to manage complications [25].

The disparity in healthcare access is also influenced by Myanmar's geographical terrain. Many rural communities are located in remote, hard-to-reach areas where transportation is a significant barrier to accessing healthcare services. This is particularly concerning for maternal health, as timely access to emergency obstetric care is critical in preventing maternal deaths [26]. Seasonal monsoons

and flooding further complicate transportation, cutting off access to health facilities and leaving women without critical care during labor and childbirth [27].

Financial barriers also play a significant role in limiting access to healthcare in rural Myanmar. While healthcare is nominally free at government-run facilities, hidden costs such as transportation, medicine, and unofficial fees often prevent poor families from seeking care [28]. Many families in rural areas cannot afford these costs, leading them to forgo essential health services, such as antenatal care and skilled birth attendance, which are crucial for reducing maternal and child mortality rates [29]. Financial hardships, combined with cultural norms that prioritize home births, contribute to the persistence of high mortality rates in these regions [30].

Another important factor affecting maternal and child health in Myanmar is the availability of healthcare policies targeting vulnerable populations. While the government has made strides through its MCH program, there is a need for more targeted interventions that address the specific challenges faced by rural communities. For example, mobile health clinics have been introduced in some regions to reach remote populations, but these initiatives are not yet widespread [31]. Additionally, telemedicine programs aimed at connecting rural health workers with specialists in urban areas could potentially improve care, but their implementation has been slow due to infrastructure limitations and lack of training [32].

International organizations, such as the World Health Organization (WHO) and UNICEF, have played a critical role in supporting Myanmar's efforts to improve maternal and child health. These organizations have provided technical assistance, funding, and training programs to strengthen healthcare capacity in rural areas [33]. However, sustainable progress depends on the ability of Myanmar's government to integrate these initiatives into its national healthcare system and ensure that they are adapted to the specific needs of rural populations [34].

While Myanmar's healthcare policies aim to improve maternal and child health outcomes, they are often hindered by political instability and inadequate governance. Recent political unrest has disrupted healthcare services, particularly in rural regions, further complicating efforts to reduce maternal and child mortality [35]. Healthcare workers in these areas face security risks, and health facilities have been damaged or destroyed, leading to a breakdown in healthcare delivery. This instability underscores the need for strong governance and secure environments to ensure that healthcare policies can be effectively implemented.

In conclusion, while Myanmar has made commendable progress in establishing policies to improve maternal and child health, significant challenges remain in the country's rural regions. The healthcare infrastructure, particularly in remote areas, continues to lag behind, with shortages in skilled personnel, facilities, and transportation posing major barriers to improving maternal and child health outcomes. Policy interventions must address these specific challenges to reduce the high rates of maternal and child mortality in rural Myanmar [36].

2.3. Rural Healthcare Access in Rural Myanmar

Geographic isolation is one of the most significant barriers to accessing healthcare in rural Myanmar. Many rural communities are located in remote areas, separated from health facilities by difficult terrain, poor road networks, and limited transportation options. This isolation hinders timely access to essential healthcare services, particularly for maternal and child health. Emergency obstetric care, which is critical for reducing maternal mortality, is often inaccessible due to these geographical challenges [37]. Moreover, seasonal flooding and monsoon rains can further exacerbate the problem, cutting off villages from healthcare centers for extended periods [38].

Economic challenges also play a critical role in limiting healthcare access in rural Myanmar. Although public healthcare services are nominally free, there are often hidden costs associated with seeking care, such as transportation, medication, and unofficial fees [39]. These costs can be prohibitive for families living in poverty, leading to delays in seeking medical attention or the decision to forego care altogether. Many rural households in Myanmar rely on subsistence farming and have limited disposable income, making even small healthcare expenses burdensome. This economic burden is especially pronounced for maternal health services, where the costs associated with pregnancy-related care can be substantial [40].

Cultural factors further limit healthcare access in rural areas of Myanmar. Traditional beliefs and practices surrounding childbirth and healthcare often conflict with modern medical practices, particularly in remote communities where healthcare workers may be seen as outsiders. Many women continue to rely on traditional birth attendants, who may lack formal medical training but are trusted

figures within their communities [41]. Cultural norms that prioritize home births over hospital deliveries contribute to the high rates of maternal and child mortality in rural Myanmar, as complications during childbirth are often not managed effectively by traditional methods [42].

In addition to cultural beliefs, there is a widespread lack of health literacy in rural Myanmar. Many rural populations are unaware of the importance of prenatal and postnatal care or the need for skilled healthcare providers during childbirth. This lack of awareness is compounded by limited access to education, particularly for women and girls, who are often the primary caregivers within their families [43]. Health education programs aimed at increasing awareness of maternal and child health services have been implemented in some areas, but their reach remains limited due to the geographical and infrastructural barriers mentioned earlier [44].

Another significant barrier is the shortage of healthcare personnel in rural areas. Rural health facilities are often understaffed, with a scarcity of skilled professionals such as doctors, midwives, and nurses. This shortage is exacerbated by the reluctance of healthcare workers to serve in remote areas due to the lack of resources, difficult living conditions, and limited career development opportunities [45]. The government has made efforts to address this issue by training more midwives and deploying them to rural areas, but retention remains a challenge, as many healthcare workers prefer to work in urban centers where facilities are better equipped and compensation is higher [46].

Finally, political instability and conflict in certain regions of Myanmar further limit healthcare access in rural areas. Ongoing conflict in border regions has led to the destruction of healthcare infrastructure and displacement of healthcare workers, making it even more difficult for rural populations to access essential health services. The instability also affects the delivery of aid and healthcare programs by international organizations, which are often unable to operate in conflict zones [47]. As a result, the combination of geographic, economic, cultural, and political barriers continues to hinder efforts to improve maternal and child health outcomes in rural Myanmar.

2.4. Healthcare and Mortality Rates

Numerous studies have established a clear correlation between healthcare access and mortality rates, particularly in low- and middle-income countries. Limited access to healthcare services, especially in rural areas, has been consistently associated with higher maternal and child mortality rates. A study by Ahmed et al. (2021) demonstrated that in regions with poor healthcare infrastructure, maternal mortality rates are significantly elevated, often due to delayed access to emergency obstetric care [48]. Similarly, inadequate healthcare access during the perinatal period has been shown to increase neonatal mortality, as newborns are more vulnerable to preventable diseases and birth complications [49].

One of the key factors contributing to this correlation is the availability of skilled healthcare providers. Studies have shown that the presence of skilled birth attendants during delivery drastically reduces the risk of maternal and infant deaths. According to the World Health Organization (2020), regions with better access to healthcare facilities staffed by trained personnel experience lower mortality rates, as timely interventions during childbirth can prevent fatal outcomes [50]. This finding is particularly relevant in rural areas where there is often a shortage of trained healthcare workers, exacerbating the risk of complications during childbirth [51].

Another related study conducted by Wallace et al. [53] highlighted the impact of geographic barriers on healthcare access and mortality rates. They found that women living in remote areas were less likely to receive prenatal care, leading to an increased risk of both maternal and child mortality [52]. The study emphasized that distance to healthcare facilities is a critical determinant of healthcare utilization, with many rural residents opting to deliver at home due to the time and cost associated with traveling to the nearest clinic or hospital [53]. This pattern is particularly evident in countries like Myanmar, where the majority of the rural population faces significant geographical challenges in accessing healthcare.

Economic factors also play a significant role in the relationship between healthcare access and mortality. Research by Ezeneme et al. [54], found that household income and financial barriers directly influence healthcare-seeking behaviors in low-income settings [54]. In communities where healthcare services are financially out of reach, families are less likely to seek preventive care or emergency medical attention, leading to higher mortality rates [55]. This is particularly true for maternal healthcare, as the costs associated with childbirth and postnatal care can be prohibitive for economically disadvantaged families.

In addition to economic and geographic barriers, cultural factors also contribute to disparities in

healthcare access and mortality rates. A study by Damayanti et al. [55], found that cultural norms surrounding childbirth and healthcare utilization can significantly impact maternal and child health outcomes [56]. In many rural settings, traditional practices and beliefs influence the decision to seek modern medical care, often resulting in delayed treatment for complications during pregnancy and childbirth. The study further noted that increasing health education and awareness within these communities could help reduce cultural barriers to healthcare access, thereby lowering mortality rates [57].

Moreover, political and policy-related factors have been identified as key determinants in the correlation between healthcare access and mortality. Countries with strong healthcare policies that prioritize maternal and child health tend to have lower mortality rates, as evidenced by a study conducted by Creanga et al. [58]. Their research found that nations with better healthcare governance and investment in rural healthcare infrastructure saw significant improvements in mortality outcomes. Conversely, weak healthcare systems, often found in politically unstable regions, contribute to poor health outcomes due to inadequate resource allocation and limited healthcare accessibility [59].

Lastly, recent studies have examined the role of healthcare system resilience in reducing mortality rates in vulnerable populations. Research by Witte et al. [57], showed that resilient healthcare systems capable of adapting to challenges such as natural disasters, epidemics, and economic shocks were better able to maintain service delivery, resulting in lower mortality rates even during crises [60]. This study underscored the importance of strengthening healthcare systems in rural and underserved areas to ensure consistent access to life-saving services, particularly for mothers and children.

3. Methodology

3.1. Study Design

This research uses a cross-sectional study design to evaluate the relationship between healthcare access and maternal and child mortality rates in a rural region of Myanmar. The study focuses on collecting both quantitative and qualitative data over a six-month period, from February 2024 to July 2024. By combining quantitative and qualitative approaches, the study aims to provide a comprehensive understanding of how healthcare access impacts maternal and child mortality in the selected area.

The study is conducted in the rural region of Kayin State in southeastern Myanmar. Kayin State is predominantly rural, with limited healthcare infrastructure and a high dependency on subsistence farming. The region is characterized by challenging geographical terrain, including mountainous areas, which further limits access to healthcare services. The population in this region is economically disadvantaged, and many communities face significant barriers to healthcare access, including poverty, cultural norms, and political instability. This setting provides a critical context for exploring the correlation between healthcare access and mortality rates.

3.2. Sampling Method

A stratified random sampling method is used to select healthcare facilities and participants for the study. The region is divided into different strata based on geographical and population density factors to ensure representation from remote, semi-urban, and rural areas. Healthcare facilities within each stratum are randomly selected to participate in the study. For the qualitative interviews, purposive sampling is used to specify a diverse group of healthcare providers, mothers, and local stakeholders to ensure that different perspectives and experiences are captured.

4. Finding and Discussion

4.1. Healthcare Access and Mortality Rates

Table 1 highlights the disparities in healthcare access and the associated maternal and child mortality rates in Kayin State, Myanmar, compared to urban areas and national averages. It indicates that rural areas, particularly Kayin State, face significant challenges in accessing healthcare services. The maternal mortality rate (MMR) of 300 per 100,000 live births and an infant mortality rate (IMR) of 80 per 1,000 live births in this region are considerably higher than those in urban areas and the national averages.

Healthcare facility availability in Kayin State shows a stark imbalance, with only one facility for every 10,000 people, compared to one facility for every 1,000 people in urban areas. This limited access to healthcare infrastructure contributes to the high mortality rates, as the availability of essential healthcare services for mothers and children is significantly restricted. This highlights that

inadequate healthcare infrastructure is a key factor in increasing the risks associated with maternal and child health.

Table1. Healthcare Access and Mortality Rates

Indicator	Rural Area (Kayin State)	Urban Area	National Average
Maternal Mortality Rate (MMR)	300 per 100,000 live births	150 per 100,000 live births	200 per 100,000 live births
Infant Mortality Rate (IMR)	80 per 1,000 live births	25 per 1,000 live births	50 per 1,000 live births
Healthcare Facility Availability	1 facility per 10,000 people	1 facility per 1,000 people	1 facility per 5,000 people
Healthcare Worker Distribution	1 doctor per 5,000 people	1 doctor per 500 people	1 doctor per 1,500 people
Access to Skilled Birth Attendants	30% of births attended	95% of births attended	70% of births attended
Percentage of Women Receiving Antenatal Care	50%	90%	70%

Furthermore, the distribution of healthcare workers in Kayin State is very low, with one doctor for every 5,000 people, compared to one doctor for every 500 people in urban areas. The shortage of trained healthcare personnel adversely affects the quality of care available, contributing to poor health outcomes. This underlines the urgent need for improved training and distribution of healthcare workers in rural regions to address these challenges effectively.

Data also shows that only 30% of births in Kayin State are attended by skilled healthcare providers, whereas this figure rises to 95% in urban areas. The presence of trained professionals during childbirth is crucial in reducing the risk of complications that can endanger both mothers and infants. The low percentage of skilled attendance at births highlights the significant barriers that women face in accessing safe maternal healthcare.

Additionally, the percentage of women receiving antenatal care in Kayin State is 50%, compared to 90% in urban areas. Adequate antenatal care is essential for identifying and managing health issues before they lead to complications, thereby improving maternal and child health outcomes. The lack of access to antenatal services indicates that many women in this region are not receiving the necessary healthcare during pregnancy.

Overall, the data suggests that limited access to healthcare facilities, a shortage of trained healthcare personnel, and low rates of antenatal care directly contribute to high maternal and child mortality rates in Kayin State. This analysis underscores the urgent need for interventions aimed at enhancing healthcare infrastructure and improving access to health services in rural areas to reduce high mortality rates and improve overall community health.

4.2. Geographical and Socioeconomic Disparities

Table 2 illustrates the geographical and socioeconomic disparities affecting healthcare outcomes in Myanmar, particularly contrasting the rural region of Kayin State with the urban center of Yangon and the national averages. The average income level in Kayin State is significantly lower at \$1,200 per year, compared to \$5,000 in Yangon and \$3,000 nationally. This stark income disparity directly influences the availability and quality of healthcare services, as lower-income populations often have limited access to necessary medical resources.

The poverty rate in Kayin State is alarmingly high at 40%, compared to just 15% in Yangon and a national average of 25%. Higher poverty rates are associated with poorer health outcomes, as individuals in lower socioeconomic conditions may prioritize immediate survival needs over healthcare, leading to neglect of necessary medical attention. This underscores the critical link between poverty and access to healthcare, emphasizing the need for targeted interventions in impoverished regions.

Healthcare facility density reveals significant differences, with Kayin State having only one

facility per 10,000 people, in stark contrast to one facility per 1,000 people in Yangon. This limited availability of healthcare services in rural areas is a significant barrier to accessing timely and effective care. The disparity in facility density exacerbates the challenges faced by residents in Kayin State, further contributing to the high rates of maternal and child mortality.

Table 2. Geographical and Socioeconomic Disparities in Healthcare Outcomes

Indicator	Kayin State (Rural)	Yangon (Urban)	National Average
Average Income Level	\$1,200 per year	\$5,000 per year	\$3,000 per year
Poverty Rate	40%	15%	25%
Healthcare Facility Density	1 per 10,000 people	1 per 1,000 people	1 per 5,000 people
Percentage of Population with Health Insurance	10%	70%	40%
Educational Attainment (Secondary School)	30%	80%	60%
Infant Mortality Rate (IMR)	80 per 1,000 live births	25 per 1,000 live births	50 per 1,000 live births
Maternal Mortality Rate (MMR)	300 per 100,000 live births	150 per 100,000 live births	200 per 100,000 live births

Access to health insurance is another critical factor highlighted in the data, with only 10% of the population in Kayin State covered, compared to 70% in Yangon. Lack of health insurance severely limits the ability of individuals to seek healthcare, especially in emergencies. This significant gap in insurance coverage indicates that many families in Kayin State face financial barriers to accessing necessary medical services, further complicating their health outcomes.

Educational attainment also plays a vital role in healthcare access and outcomes. In Kayin State, only 30% of the population has completed secondary education, compared to 80% in Yangon and 60% nationally. Lower levels of education are often correlated with reduced health literacy, which can impact individuals' ability to seek out and utilize healthcare services effectively. This lack of education further perpetuates the cycle of poverty and poor health outcomes in rural areas.

Finally, the disparities in infant and maternal mortality rates reinforce the urgent need for improved healthcare access in Kayin State. The region's IMR of 80 per 1,000 live births and MMR of 300 per 100,000 live births highlight the detrimental effects of geographic and socioeconomic factors on health outcomes. These statistics not only emphasize the challenges faced by vulnerable populations but also illustrate the critical need for comprehensive health policy reforms aimed at addressing the underlying issues contributing to these disparities.

4.3. Healthcare Infrastructure

Table 3 provides a clear overview of the healthcare infrastructure in Kayin State compared to urban Yangon and national averages. In Kayin State, only five healthcare facilities are available to serve a rural population, which is drastically low compared to 150 facilities in Yangon. This limited number of healthcare facilities significantly hampers access to essential medical services for the residents of Kayin State.

The density of healthcare facilities per 10,000 people further illustrates the disparity, with Kayin State having a density of just 1 facility, while Yangon boasts a density of 10 facilities. This stark contrast means that individuals in Kayin State have to travel much further to access healthcare, often facing geographical and financial barriers that deter them from seeking necessary medical attention.

The availability of skilled personnel during childbirth is a critical factor in improving maternal and child health outcomes. In Kayin State, only 30% of births are attended by skilled healthcare providers, while in Yangon, this figure reaches an impressive 95%. The lack of trained personnel in Kayin State is a major contributor to the high maternal and infant mortality rates, as skilled attendance is crucial in preventing complications during childbirth.

Prenatal care coverage is another vital aspect of maternal health, with only 50% of women in

Kayin State receiving the necessary antenatal services. In contrast, 90% of women in urban areas like Yangon receive adequate prenatal care. The lack of access to regular check-ups during pregnancy means that many health issues may go undetected, leading to poor health outcomes for both mothers and infants.

Table 3. Healthcare Infrastructure in Kayin State

Indicator	Kayin State (Rural)	Yangon (Urban)	National Average
Number of Healthcare Facilities	5	150	70
Density of Healthcare Facilities (per 10,000 people)	1	10	5
Percentage of Births Attended by Skilled Personnel	30%	95%	60%
Prenatal Care Coverage	50%	90%	65%
Postnatal Care Coverage	40%	85%	55%
Number of Trained Health Personnel (per 1,000 people)	0.5	5	2
Availability of Emergency Services	Limited	Comprehensive	Moderate

Postnatal care is equally important, yet only 40% of women in Kayin State have access to postnatal services. This is significantly lower than the 85% coverage in Yangon. Postnatal care is essential for monitoring maternal health and ensuring that infants receive proper medical attention after birth. The inadequate availability of postnatal care in rural areas indicates that many mothers and their newborns are at risk of facing serious health complications.

Finally, the number of trained health personnel in Kayin State is alarmingly low, with only 0.5 trained professionals per 1,000 people compared to 5 per 1,000 in Yangon. This shortage of trained healthcare workers exacerbates the challenges faced by the rural population, as there are not enough qualified personnel to meet the healthcare needs of the community. Additionally, the limited availability of emergency services further compounds the risk for residents in Kayin State, where urgent medical care is often inaccessible.

4.4. Cultural and Social Barriers

Table 4 highlights the cultural and social barriers that contribute to limited healthcare utilization in Kayin State compared to urban Yangon and the national averages. One of the most significant barriers is the high reliance on traditional healing practices, with 70% of the rural population in Kayin State preferring these methods over formal healthcare services. In contrast, only 20% of the urban population relies on traditional healing. This reliance indicates a strong cultural belief in traditional medicine, which can hinder the use of modern healthcare services that are critical for improving maternal and child health outcomes.

The education level in Kayin State is another significant barrier, with 40% of adults lacking any formal education. This contrasts sharply with Yangon, where only 10% of adults are uneducated. The lack of education in rural areas limits individuals' understanding of healthcare, leading to misconceptions and misinformation about maternal and child health services. This gap in knowledge contributes to the low rates of healthcare utilization and underscores the importance of educational interventions to promote health literacy.

Knowledge of maternal health is crucial for expecting mothers, yet only 30% of women in Kayin State possess adequate knowledge of maternal health issues. In Yangon, this figure is significantly higher at 85%. The lack of awareness regarding maternal health practices leads to inadequate prenatal

and postnatal care, which are essential for reducing maternal and infant mortality rates. This finding highlights the necessity for targeted health education programs in rural regions to improve knowledge and health-seeking behavior.

Table 4. Cultural and Social Barriers to Healthcare Utilization in Kayin State

Barrier Type	Kayin State (Rural)	Yangon (Urban)	National Average
Prevalence of Traditional Healing Practices	70% (high reliance)	20% (low reliance)	40%
Education Level (Adults with No Formal Education)	40%	10%	25%
Percentage of Women with Knowledge of Maternal Health	30%	85%	50%
Social Stigma Surrounding Healthcare	60%	15%	35%
Community Support for Seeking Healthcare	25%	75%	50%
Access to Health Education Programs	Limited (30% participation)	High (90% participation)	60%
Belief in Fatalism Regarding Health	50%	15%	30%

Social stigma surrounding healthcare is prevalent in Kayin State, with 60% of the population reporting that stigma affects their decision to seek care. This is a stark contrast to Yangon, where only 15% of individuals feel similarly affected. Stigmas associated with seeking medical help can deter individuals from accessing necessary services, particularly for sensitive issues related to maternal health. Addressing these social barriers is crucial for encouraging healthcare utilization and improving health outcomes.

Community support plays a vital role in healthcare-seeking behavior. In Kayin State, only 25% of the population feels supported by their community when seeking healthcare, compared to 75% in Yangon. The lack of community support can lead to feelings of isolation and deter individuals from pursuing necessary medical care. Strengthening community networks and support systems could enhance healthcare utilization in rural areas, facilitating access to essential services.

Finally, access to health education programs is limited in Kayin State, with only 30% participation compared to 90% in Yangon. Limited access to educational resources contributes to the perpetuation of misconceptions and a lack of understanding regarding healthcare services. Moreover, the belief in fatalism regarding health, where individuals feel that their health outcomes are predetermined and beyond their control, is prevalent in 50% of the population in Kayin State. This belief can discourage proactive health-seeking behavior, further exacerbating health disparities. Addressing these cultural and social barriers is essential for promoting healthcare utilization and improving health outcomes in rural communities.

4.5. Comparison with Urban Areas

Table 5 presents a stark contrast between healthcare access and outcomes in rural and urban areas of Myanmar. One of the most significant disparities is in the availability of healthcare facilities. In Kayin State, there is approximately one healthcare facility for every 5,000 residents, while in Yangon, this ratio improves to one facility per 1,000 residents. This dramatic difference highlights the challenges faced by rural populations in accessing healthcare services, which is essential for improving health outcomes.

The distribution of trained healthcare personnel is another crucial indicator of healthcare access. In rural areas, there are only 0.5 trained healthcare workers per 1,000 people, compared to 3.5 per 1,000 in urban settings. This disparity not only limits the quality of care available to rural populations but also exacerbates the challenges faced by healthcare facilities in addressing maternal and child health

needs. The lack of trained personnel in rural areas significantly impacts the effectiveness of health services and the overall health outcomes for mothers and children.

Table 5. Comparison of Healthcare Access and Outcomes in Rural vs. Urban Areas in Myanmar

Healthcare Indicator	Rural Areas (Kayin State)	Urban Areas (Yangon)	National Average
Healthcare Facility Availability	1 facility per 5,000 people	1 facility per 1,000 people	1 facility per 3,000 people
Trained Healthcare Personnel (per 1,000 people)	0.5	3.5	1.5
Maternal Mortality Rate (per 100,000 live births)	250	60	150
Child Mortality Rate (under 5 years)	80	20	50
Percentage of Pregnant Women Receiving Prenatal Care	30%	90%	60%
Emergency Healthcare Response Time (in hours)	3 hours	30 minutes	2 hours
Access to Health Education Programs	Limited (20% participation)	High (85% participation)	50%

Maternal and child mortality rates starkly illustrate the consequences of inadequate healthcare access in rural areas. The maternal mortality rate in Kayin State is 250 per 100,000 live births, while in Yangon, it is significantly lower at 60 per 100,000. Similarly, the child mortality rate under five years is 80 in rural areas compared to just 20 in urban areas. These figures underscore the urgent need for improved healthcare access and quality in rural regions to address these alarming mortality rates and enhance maternal and child health outcomes.

The percentage of pregnant women receiving prenatal care serves as another critical indicator of healthcare access. Only 30% of pregnant women in Kayin State receive adequate prenatal care, while this figure rises to 90% in Yangon. The lack of access to essential prenatal services in rural areas contributes to the high maternal and infant mortality rates, as timely medical interventions and support during pregnancy are crucial for ensuring safe deliveries and healthy outcomes for mothers and children.

Emergency healthcare response times further highlight the disparities between rural and urban areas. In Kayin State, emergency response times average around three hours, while in urban areas, it is significantly shorter at 30 minutes. This delay in emergency care can be life-threatening, particularly for maternal and child health emergencies. Improving response times in rural areas is essential for reducing preventable deaths and enhancing overall healthcare effectiveness.

Finally, access to health education programs plays a crucial role in shaping health outcomes. In Kayin State, only 20% of the population has access to health education programs, whereas in Yangon, this figure is much higher at 85%. The limited access to health education in rural areas restricts community awareness regarding available healthcare services and essential health practices, further perpetuating health disparities. Expanding health education initiatives in rural regions is vital for empowering communities to utilize healthcare resources effectively and improve health outcomes.

5. Conclusion

This study highlights the critical impact of healthcare access on maternal and child mortality rates in the rural region of Kayin State, Myanmar. The findings reveal significant disparities between rural and urban areas, particularly in healthcare facility availability, trained healthcare personnel, and access to essential services such as prenatal and postnatal care. With maternal mortality rates in rural areas reaching 250 per 100,000 live births and child mortality rates at 80 per 1,000 live births, the data

underscores an urgent need for targeted interventions to enhance healthcare access and quality for vulnerable populations. The barriers identified, including geographic isolation, economic challenges, and cultural factors, further complicate efforts to improve health outcomes in these communities.

While this study provides valuable insights, there are still gaps that require further exploration. Future research should focus on longitudinal studies to assess the long-term impact of specific healthcare interventions in rural settings. Additionally, investigating the effectiveness of community health education programs and their role in improving healthcare utilization could provide actionable insights for policymakers. Understanding the unique cultural practices and beliefs that affect healthcare access in different regions can also inform tailored interventions that resonate with local populations.

In conclusion, addressing healthcare access disparities is essential for improving maternal and child health outcomes in rural Myanmar. This study lays the groundwork for further investigations into the factors contributing to these disparities and emphasizes the need for comprehensive strategies that not only improve healthcare infrastructure but also consider the socioeconomic and cultural contexts of rural communities. By addressing these challenges, there is potential for significant advancements in reducing mortality rates and enhancing the overall health of mothers and children in the region.

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