Determinants of Quality Maternal Care among Women in Garissa County Referral Hospital

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ABSTRACT

The determinants of quality maternal care among women in Garissa County Referral Hospitals are multifaceted and can be attributed to a combination of individual, structural, and systemic factors. The general objective of this study was to examine the determinants of quality maternal care among women in Garissa County Referral Hospital. The specific objectives include to examine how physical factors and accessibility contribute to quality maternal care among women in Garissa County Referral Hospital. The study was guided by the Social Cognitive Theory and Social Action Theory. A descriptive research design was employed. The target population consists of 314 employees at Garissa County Referral Hospitals, with a sample size of 63 participants, determined using Yamane's formula. Data collection involved the administration of questionnaires and key informant interviews. The collected data was analyzed using the Statistical Package for Social Sciences (SPSS). The findings from this study suggest the study emphasize the significant role of physical accessibility in determining maternal health outcomes, especially in areas like Garissa County, where geographical, infrastructural and social factors significantly hinder access to timely maternal healthcare. The results of a binary logistic regression analysis conducted indicated Physical Accessibility, Is Not Statistically Significant Predictors, Although Access and Staffing scores were included in the model, their coefficients were not statistically significant ($p > 0.05$): Access: $B = 0.010$, $p = 0.873$. The study concludes Geographic isolation, poor infrastructure, lack of emergency services and limited transport options all contribute to delays in seeking maternal care, which increases the risk of maternal complications and deaths. Among the recommendations policies aimed at providing financial support, such as subsidized healthcare services or maternal healthcare insurance schemes, could significantly improve access to care for women from low-income households.

Keywords: Quality Healthcare, Maternal Health, Health Systems

Background of the Study

The World Health Organization (WHO) identifies several deaterminnts of quality maternal care and are crucial for informing policies to improve maternal health (Whiting-Collins, et al., 2024). The main focus was on the determinants such as client satisfaction, effectiveness, communication and respect and continous improvement. Meanwhile, Lapo-Talledo, (2024) emphasized on the fact that the WHO's efforts in this regards often focus on advocating for policies and interventions aimed at reducing incidence poor quality maternal care , promoting evidence-based practices in maternal healthcare, and supporting countries in implementing effective maternal health programs.

All health problems present some generic and some specific challenges for measurements regardless of the setting community or healthy facility, developed or developing country. Poor quality maternal care was the subject of a qualitative study conducted in South Punjab, Pakistan by Omer, Zakar, Zakar, and Fischer in 2021. Maternal fatalities are believed to occur at a disproportionately high rate in emerging and undeveloped countries worldwide. A large portion of this is attributed to societal and cultural variables that act as obstacles to women seeking the proper maternity care. There is a vast amount of study on poor quality maternal care in poor nations. However, in the context of the Three Delays Model, there is a dearth of research on the sociocultural variables contributing to poor quality maternal care. In South Punjab, Pakistan, the current study is to investigate sociocultural variables that contribute to a delay in accessing maternity healthcare services.

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The study found that certain social and cultural variables make it more probable for delays in obtaining care to occur in Pakistan, which may lead to poor quality maternal care. The biggest obstacles to accessing treatment among rural individuals were inadequate financial resources, low socioeconomic position, and ignorance of maternity care. Women's low status and male dominance continue to limit their authority. Maternal fatalities are often linked to the preference for traditional birth attendants. Additionally, early marriages and limited use of family planning—practices deeply embedded in cultural, religious, and customary beliefs—have contributed to young girls being denied access to essential maternity services. The influence of conventional or spiritual healers is one illustration of this.

Quality maternal care are a significant global concern, with various studies highlighting key contributing factors. A study by Michigan Medicine (2022) found that more than half of maternal mortalities occur outside of childbirth, particularly earlier in pregnancy or during the postpartum period. This finding emphasizes the need for continuous care and monitoring throughout pregnancy and postpartum to address complications that may arise beyond delivery. The World Health Organization (WHO, 2022) identifies infections, severe bleeding, unsafe abortion, high blood pressure during pregnancy and complications from delivery as the leading causes of maternal mortalities due to poor quality of care. These factors often result from delays in seeking, reaching, or receiving appropriate care, pointing to the critical role of healthcare infrastructure and accessibility in reducing low quality maternal care. Similarly, Yale Medicine (2022) reported that heart disease and stroke have emerged as significant causes of poor maternal outcome, with cardiomyopathy being the most common cause of death from one week to a year after delivery. This underscores the importance of addressing underlying health conditions in maternal healthcare to mitigate long-term risks for women.

Quality maternal care in middle-income countries stem from various factors, with studies highlighting specific trends and causes. In India, hemorrhage remains the leading cause of poor maternal outcome, accounting for nearly 37% of all cases, according to a study by Begum et al. (2021). The research emphasized that delays in accessing emergency obstetric care significantly contribute to mortality rates, especially in rural and underserved areas.

In Brazil, Souza et al. (2020) found that hypertension and related disorders, particularly pre-eclampsia and eclampsia, are the most common causes of poor maternal outcome. The study noted that while healthcare infrastructure in urban centers is well-equipped, disparities in care persist in remote regions, highlighting the need for equitable healthcare delivery systems.

Similarly, in South Africa, Pattinson et al. (2019) reported that infections, particularly sepsis, accounted for a significant proportion of poor-quality maternal care. The study attributed this to challenges in early diagnosis and treatment, as well as gaps in healthcare provider training on infection prevention and management.

A study on the many causes linked to maternal fatalities in Bangladesh's hard-to-reach disadvantaged populations was carried out in 2020, Biswas, Halim, Md. Abdullah, Rahman, and Doraiswamy (2020). Maternal difficulties claim the lives of about 5200 women in Bangladesh each year (or 172 maternal fatalities for every 100,000 live births). In remote locations and impoverished neighborhoods, like Bangladesh's tea fields, the fatality rate is far greater. Owing to limited awareness, education, and healthcare access, the women who live in the tea garden areas are denied access to high-quality medical treatment. In contemporary culture, early marriage and poverty, which is followed by early pregnancy, are additional risk factors for poor quality maternal care. Additionally, they examined the factors that contribute to poor quality maternal care in the Moulvibazar district of Bangladesh underprivileged tea garden community. January through March of 2018 saw the completion of this cross-sectional survey. In comparison to the Moulvibazar district of Bangladesh, Poor quality maternal care rates in the destitute tea plantations are consistently high. The sustainable development agenda (SDG) states that Bangladesh's maternal mortality rate (MMR) should be 70 per 100,000 live births. Our study's results demonstrate the necessity for targeted action to lower the incidence of maternal mortality, which will enhance quality maternal care and expedite the achievement of the SDG.

Nyangena, (2020) conducted research on poor quality maternal care rates in Kenya's Kisii County as a result of free maternal health care initiatives. Kenya has always had high rates of maternal morbidity and death. With a maternal mortality rate of 488 deaths per 100,000 live births, Kenya significantly exceeds both the 2015

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Millennium Development Goal (MDG) target of 147 and the 2030 Sustainable Development Goal (SDG) objective of 70 deaths per 100,000 live births. Current trends indicate limited progress toward these targets. Additionally, for every woman who dies during childbirth, it is estimated that 20 to 30 others suffer serious injuries or long-term complications related to pregnancy or delivery. A key contributing factor to this crisis is the inadequate access to quality antenatal, intrapartum, and postnatal care services. In Kenya, just 44% of deliveries were under the observation of a trained birth attendant by 2012 in order to solve this issue, the Kenyan government implemented a policy of free maternity services at all public institutions on June 1, 2013.

A study by Caroline et al. (2022) explored the quality of maternal and child health services in Nairobi and Garissa counties, Kenya. The research highlighted the global prioritization of maternal and child health and emphasized the importance of interventions aimed at improving both the quality and uptake of these services. Enhancing service quality supports three core health system goals: improved service delivery, financial risk protection, and responsive care. Access to high-quality maternal health services is essential not only for individual well-being but also for enhancing societal productivity. Given potential challenges such as limited hospital resources or infrastructure in Garissa County, addressing maternal health issues necessitates a comprehensive, multi-stakeholder approach involving diverse strategies.

Statement of the Problem

Globally, one woman dies every minute due to complications associated with childbirth, with approximately 500,000 women succumbing to pregnancy-related causes annually, the majority of whom are in underdeveloped countries (Clark, 2005). Despite evidence that antenatal clinics and skilled delivery services significantly reduce poor quality maternal care and morbidity rates, many women, especially in underprivileged regions, fail to access these services. For instance, the 2010 KDHS estimated that 1 in 25 women face the risk of dying from complications related to pregnancy and childbirth during their lifetime, highlighting the urgency of addressing maternal healthcare gaps (Turner, 2019).

In Kenya, maternal healthcare utilization remains low, with many women initiating antenatal visits later than the recommended 14 weeks of pregnancy. Alarmingly, the proportion of births attended by skilled professionals decreased from 51% in 1989 to 42% in 2004, despite the critical role of skilled care in reducing low quality maternal care (Yadav et al., 2020). Youth less than 24 years, comprising about 36% of Kenya's population, face unique challenges such as early sexual initiation, unintended pregnancies, and limited access to maternal health services, further exacerbates the risks of pregnancy-related complications.

Garissa County provides a stark example of these challenges. Mohamed, Odongo, and Mogere (2023) documented poor maternal outcomes at Garissa County Referral Hospital in 2022, noting that 61% of these cases were referrals from Tana River and Garissa County hospitals, while 39% were self-referrals by critically ill patients. Systematic delays, inadequate staffing, lack of standardized care protocols, and poor medical documentation compound the region's maternal health crisis (Syairaji et al., 2024). Moreover, Kenya's poverty levels often restrict access to essential healthcare services, including prenatal care, skilled birth attendants, and emergency obstetric care as women living in poverty struggle with transportation and healthcare costs, resulting in delayed or inadequate treatment during pregnancy and childbirth (Bhatia et al., 2021).

Reports highlight that severe bleeding during and after childbirth, complications related to hypertension, obstructed labor, and insufficient healthcare services due to poor quality maternal care in Garissa County (Syairaji et al., 2024). Additionally, systemic issues such as insufficient resources, poor infrastructure, and limited medical personnel further hinder the implementation of effective maternal health services. Addressing these challenges requires not only improving hospital infrastructure and staffing but also providing better compensation packages for healthcare professionals to ensure the sustainability of free maternal healthcare services in Kenya. Without targeted interventions, Garissa County and similar regions continue to bear a disproportionate burden of maternal morbidity and mortality.

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI | Volume XII Issue XV July 2025 | Special Issue on Public Health

LITERATURE REVIEW

Quality Maternal Care

Quality maternal care encompasses a spectrum of services and experiences that women receive during pregnancy, childbirth, and the postpartum period. The World Health Organization (WHO, 2016) defines quality maternal care as care that is effective, safe, timely, equitable, and woman-centered. It includes both the provision of care (technical aspects) and the experience of care (respectful and dignified treatment). Quality care is not solely about clinical outcomes but also involves interpersonal aspects such as communication, emotional support, and informed decision-making (Tunçalp et al., 2015). High-quality care should respond to a woman's individual needs and preferences and ensure continuity throughout the maternal health continuum.

The World Health Organization's framework for improving maternal and newborn care in health facilities outlines eight key domains: evidence-based practices, actionable information systems, functional referral systems, effective communication, respect and dignity, emotional support, competent and motivated health workers, and the availability of essential physical resources. These domains collectively aim to enhance both the provision and experience of care for mothers and newborns (WHO, 2016). These domains help define and evaluate the quality of maternal services, especially in low-resource settings. Donabedian's model, which categorizes quality into structure, process, and outcomes, also provides a useful framework. Structure refers to the facilities physical and human resources, process relates to how care is delivered, and outcome involves the health results for mother and baby (Donabedian, 1988).

Several determinants influence the quality of maternal care in different contexts, Inadequate infrastructure, shortage of skilled health personnel, and lack of essential supplies have been widely identified as barriers to quality maternal care, particularly in rural and marginalized areas (Bhutta et al., 2014; Okonofua et al., 2018). In Garissa and similar counties in Northern Kenya, health system fragility contributes to poor service delivery and low health-seeking behavior.

Cultural norms, gender dynamics, and economic status significantly affect the access to and perception of maternal care. Studies have shown that in some pastoralist communities, decisions about maternal health are influenced by husbands or elders, and women may be reluctant to seek facility-based care due to cultural insensitivity or fear of disrespectful treatment (Kruk et al., 2014; Abuya et al., 2015). Respectful maternity care is increasingly recognized as a cornerstone of quality (Bohren et al., 2015). Experiences of mistreatment, such as verbal abuse, neglect, and discrimination, deter women from seeking institutional deliveries. Improving interpersonal interactions can significantly enhance utilization and trust in the health system. National and county-level policies and leadership also influence the quality of care. Decentralized governance in Kenya has enabled counties like Garissa to develop context-specific interventions, though challenges remain in aligning resources, training, and monitoring mechanisms (MOH, 2020).

Kenya has made strides in developing policies such as the Linda Mama program under the Social Health Insurance Fund (SHIF) to increase financial access to maternal services. However, systemic implementation challenges—especially in arid and semi-arid lands (ASALs) continue to affect service quality (MOH, 2022). In Garissa, gaps in coordination, staff motivation and inadequate community involvement remain major bottlenecks. Decentralization of health services through devolution was expected to enhance local responsiveness but success has varied across counties. Studies show that counties with better governance and investment in maternal care infrastructure perform better in quality outcomes (Wamai et al., 2018).

In Kenya, empirical studies have underscored gaps in both the technical and experiential dimensions of care. Abuya et al. (2015) found that while women valued access to skilled birth attendants, their perception of quality was highly influenced by the behavior of staff, availability of supplies, and physical conditions of the facility. Similarly, Kruk et al. (2017) emphasized that women are more likely to use services if they believe they are of good quality, regardless of proximity. In Northern Kenya, including Garissa County, there are disparities in maternal health indicators compared to national averages. A study by KDHS (2022) indicated that skilled birth attendance and facility delivery remain low in ASAL counties, attributed to geographic, socio-cultural, and infrastructural barriers. Quality maternal care is a multidimensional construct influenced by

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health systems, socio-cultural dynamics, governance, and women's own experiences. Addressing these factors in Garissa County requires an integrated approach that prioritizes respectful, competent, and responsive services tailored to local realities.

METHODOLOGY

Research Design

In this case, the researcher adopted descripive research design. Descriptive research design was chosen by the researcher because it allows for the methodical collection of data to characterize a population, situation, or phenomena.

Population and Sampling.

This study focused on women of reproductive age, specifically those between 15 and 49 years, including both pregnant and non-pregnant women. In addition, the study also targeted 314 healthcare employees working at Garissa County Referral Hospital. The researcher adopted stratified random sampling procedure which will be used to sub-divide the staffs into medical officers, clinical officers, nurses, laboratory staff and hospital administration from which the research extracted 20% of the total population as suggested by Kombo and Trump (2006). Regarding the women of reproductive age group 15-49 years. The following formula was used for sample size determination:

$$n = \left(\frac{z}{m}\right)^2 p(1-p)$$

Where,

- z is the critical value based on the desired confidence level (e.g., z = 1.96 for 95% confidence level);
- m is the margin of error or precision of the estimate in this case m=0.05.
- p is the estimated value of the proportion of women who delivered a PGH (p = 0.14 referring to a prevalence of 14%) (Garissa County referral hospital 2024).

Substituting

n = {1.96 X 1.96 X 0.41(1-0.41)} /(0.05 X 0.05)

n = 205.

Adding 10% to cover for non-response rates and missing data makes a total of 205 women.

Data Collection Methods

To effectively collect data on mothers, the researcher administered the Mixed-Method Approach. It will be of significance since the researcher expected to utilize a combination of quantitative and qualitative methods to gather comprehensive data. This included structured questionnaires and Key Informant Interviews (KIIs) to capture diverse perspectives and experiences related to maternal health.

At the ANC clinic, some women were purposively selected to participate in Focus Group Discussions (FGDs) on designated days to ensure they did not participate in both the FGDs and the main survey, thus avoiding duplication. A convenient number of FGDs were conducted, comprising a total of 18 participants, using a structured questionnaire guide. These discussions were audio-recorded, and handwritten notes were also taken to ensure comprehensive data capture. The FGDs were discontinued upon reaching the saturation point—when no new insights were emerging.

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI | Volume XII Issue XV July 2025 | Special Issue on Public Health

Participants in the FGDs were grouped based on age to reflect the diversity of the target population and to create a culturally safe environment that encouraged open participation. The age-based groups included: youths (15–25 years), adults (26–36 years), and elders (37–49 years). This age segregation was informed by cultural norms in Garissa, where younger women are often reluctant to speak freely in the presence of older women. Additionally, this approach allowed for a comparative analysis of responses across different age groups.

Data Analysis

The analysis phase involved calculating correlation coefficients to determine the direction and strength of relationships between variables. Key analytical methods included the Pearson's Correlation Coefficient. This was used to measure the relationship between emotional exhaustion and psychosocial well-being. The Pearson's r was calculated to determine the correlation between emotional exhaustion and psychosocial well-being.

RESULTS & DISCUSSION

Response Rate

A total of 63 questionnaires were distributed, out of which 54 were completed and returned, while 9 were not returned. This resulted in a response rate of 85.7%.

Table 1 Response Rate

Response Category	Frequency	Percentage (%)
Actual Respondents	54	85.7%
Non-Respondents	9	14.3%
Total	**63**	**100%**

The table above categorizes the responses obtained from the 63 participants in the study. Out of these, 54 respondents (85.7%) provided reliable and usable data, while 9 participants (14.3%) did not return their questionnaires.

Gender Distribution of Respondents

The study sought to determine the gender distribution of respondents to assess the representation of both male and female participants in the research. Table 4.2 presents the frequency distribution based on gender.

Table 2 Gender Distribution of Respondents

Gender	Frequency	Percentage (%)
Male	9	16.7%
Female	45	83.3%
Total	**54**	**100%**

The table above indicates that the majority of respondents were female, accounting for 83.3% (45 respondents), while 16.7% (9 respondents) were male.

Age Distribution of Respondents

The study also examined the age distribution of respondents to provide insights into the demographic composition of the participants. Table 4.3 presents the frequency distribution based on age categories.

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI | Volume XII Issue XV July 2025 | Special Issue on Public Health

Table 3 Age Distribution of Respondents

Age Category (Years)	Frequency	Percentage (%)
Below 30	8	14.8%
31 – 35	12	22.2%
36 – 40	10	18.5%
41 – 45	9	16.7%
46 – 50	6	11.1%
51 – 55	5	9.3%
More than 56	4	7.4%
Total	**54**	**100%**

The table above shows that the highest proportion of respondents were aged 31–35 years (22.2%), followed by those aged 36–40 years (18.5%). Respondents below 30 years accounted for 14.8%, while those between 41–45 years made up 16.7%. The proportion of respondents decreased in the older age categories, with 11.1% in the 46–50 age group, 9.3% in the 51–55 age group, and 7.4% being

Work Experience Distribution of Respondents

The study further examined the respondents' work experience to understand the level of expertise among the participants. Table 4.4 presents the frequency distribution based on years of experience.

Table 4 Work Experience Distribution of Respondents

Experience (Years)	Frequency	Percentage (%)
Below 1 year	5	9.3%
1 – 5 years	14	25.9%
6 – 10 years	12	22.2%
11 – 15 years	8	14.8%
16 – 20 years	6	11.1%
21 – 25 years	5	9.3%
More than 26 years	4	7.4%
Total	**54**	**100%**

The table above indicates that the majority of respondents (25.9%) had between 1 and 5 years of experience, followed by those with 6 to 10 years (22.2%). Respondents with 11 to 15 years of experience made up 14.8%, while 9.3% had less than a year of experience. A smaller proportion of respondents had 16 to 20 years (11.1%), 21 to 25 years (9.3%), and more than 26 years (7.4%) of experience.

Highest Level of Education Distribution of Respondents

The study also examined the highest level of education attained by respondents to assess their academic qualifications. Table 5 presents the frequency distribution based on education levels.

Table 5 Highest Level of Education Distribution of Respondents

Education Level	Frequency	Percentage (%)
Diploma	18	33.3%
Undergraduate	22	40.7%

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI | Volume XII Issue XV July 2025 | Special Issue on Public Health

Master's	9	16.7%
PhD	3	5.6%
Others (Specify)	2	3.7%
Total	**54**	**100%**

The table above shows that the majority of respondents held an undergraduate degree (40.7%), followed by those with a diploma (33.3%). Respondents with a master's degree accounted for 16.7%, while 5.6% had attained a PhD. Additionally, 3.7% of respondents indicated having other educational qualifications, which may include specialized certifications or short professional courses.

Physical Accessibility Factors and quality maternal care

This section aimed to assess the extent to which physical accessibility factors influence quality maternal care. Respondents were asked to indicate their level of agreement with various statements. The table below presents the frequency of responses:

Table 6: Quantitative findings on Influence of Physical Accessibility on Quality maternal care

Statement	S A	Ag	N	D	SA	Chi²	p-value	Significant?
Distance to healthcare facilities affects the likelihood of accessing maternal care services.	43	14	3	2	1	100.41	0.0000	Yes
Poor road infrastructure contributes to delays in seeking obstetric care.	45	13	2	2	1	111.84	0.0000	Yes
High transportation costs prevent pregnant women from reaching healthcare facilities on time.	41	15	4	2	1	89.94	0.0000	Yes
Inefficient ambulance services during emergencies increases the risk of low-quality maternal care.	44	12	4	2	1	103.75	0.0000	Yes
Geographical barriers, such as remote locations, limit access to maternal healthcare services.	40	13	5	4	1	80.73	0.0000	Yes
Weather conditions (e.g., floods or droughts) hinder physical access to healthcare facilities.	39	14	6	3	1	76.92	0.0000	Yes
The proximity of healthcare facilities improves maternal health outcomes.	42	13	4	3	1	92.48	0.0000	Yes
Inadequate signage or directions to healthcare facilities delays timely access to care.	38	15	5	4	1	72.79	0.0000	Yes
Limited availability of public transport in rural areas affects access to hospital care.	43	12	5	2	1	97.56	0.0000	Yes
Physical accessibility challenges disproportionately impact vulnerable groups, such as low-income women.	46	11	3	2	1	115.65	0.0000	Yes

All Chi-square tests are statistically significant ($p < 0.05$), confirming that the patterns in responses are not due to chance. Strongly Agree is the dominant response across all statements, showing consistent acknowledgment of physical barriers to maternal care. The most agreed-upon statements include: Long distance and poor roads

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI | Volume XII Issue XV July 2025 | Special Issue on Public Health

as primary obstacles, High transport costs and lack of ambulances as critical risks. Geographical remoteness and poor signage as deterrents for timely access.

Physical Accessibility Factors Qualitative findings

Geographical barriers such as remote locations and difficult terrain were also reported to limit access to maternal healthcare services. These challenges are compounded by adverse weather conditions like flooding or extreme drought, which either render roads impassable or lead to seasonal isolation of communities. This reinforces the need for infrastructure development and disaster preparedness in health planning.

Respondents further agreed that proximity to health facilities significantly improves maternal health outcomes. Women who live closer to hospitals or clinics are more likely to seek care early and avoid complications. On the other hand, lack of proper signage and poor directions to health facilities were also found to delay access, especially for women who might not be familiar with hospital locations or road networks.

The availability of public transport was also discussed, with respondents noting that rural areas often lack affordable and accessible transport options. This affects low-income women the most, as they may be forced to walk long distances or depend on unregulated transport options, which may not be suitable for emergency cases.

Overall, the findings paint a clear picture: physical accessibility remains a significant barrier to maternal healthcare in Garissa County. The data demonstrates that structural challenges such as distance, poor roads, high transport costs, and inadequate emergency services disproportionately affect vulnerable populations, particularly low-income women. These challenges contribute directly to delays in accessing skilled care, increasing the risk of preventable low quality maternal care. Addressing these issues requires a multi-sectoral approach that integrates health, infrastructure, and social support interventions to ensure no mother is left behind due to geography or poverty.

DISCUSSION

The findings of this study emphasize the significant role of physical accessibility in determining maternal health outcomes, especially in areas like Garissa County, where geographical, infrastructural, and social factors significantly hinder access to timely maternal healthcare.

The study found that 89% of respondents believed that long distances to healthcare facilities negatively affect access to quality maternal care. This finding supports the established literature on the impact of geographic isolation on maternal health. Previous research, such as that by Moyer & Mustafa (2013)**,** shows that long distances to healthcare facilities are a major barrier to seeking timely care, particularly in rural and underserved areas. Women in remote locations often experience delayed access to skilled birth attendance, which increases the risk of complications and poor-quality maternal care. This finding highlights the need for strategies to reduce physical barriers, such as expanding healthcare facilities in rural areas or offering mobile health services to improve access.

A combined 92% of respondents noted that poor road infrastructure delays emergency care access, and 89% agreed that high transportation costs are a major barrier. These findings are in line with the “second delay” in the three-delay model described by Thaddeus & Maine (1994), where delays in reaching care contribute significantly to low quality maternal care. Poor road infrastructure and high transportation costs are critical issues in rural settings, where the lack of paved roads and high fares make it difficult for pregnant women to access emergency care. These findings reinforce the need for infrastructure improvements and affordable transportation options to ensure that women can reach healthcare facilities in a timely manner, particularly during obstetric emergencies.

Inefficient ambulance services was identified by 89% of respondents as a contributing factor to low quality maternal care. This highlights a critical gap in emergency obstetric care. Studies, such as Lassi et al. (2016), have demonstrated that timely ambulance services can reduce poor quality maternal care by enabling quick

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI | Volume XII Issue XV July 2025 | Special Issue on Public Health

transportation during emergencies. The lack of ambulance services not only delays emergency care but also contributes to the overall inefficiency of referral systems, which can be life-threatening, particularly in complicated births. These findings emphasize the importance of investing in ambulance services and improving the referral systems to reduce delays and improve maternal health outcomes.

A substantial 83% of respondents agreed that geographical remoteness affects access to maternal care, while 84% pointed to weather conditions such as flooding and drought as barriers to accessing care. These environmental and geographical challenges are common in many rural areas and exacerbate the difficulty in accessing healthcare. Murray et al. (2010) noted that environmental barriers, such as floods, can isolate communities and hinder timely healthcare access. These findings suggest that interventions aimed at improving accessibility in geographically isolated areas should consider the impact of weather patterns and invest in resilient infrastructure that can withstand extreme weather conditions.

The proximity of healthcare facilities was supported by 87% of respondents as a factor that improves maternal health outcomes, while 84% highlighted that poor signage and directions could delay care. These findings align with literature that emphasizes the importance of easy access to healthcare facilities and clear way finding for better maternal outcomes. Rashid et al. (2015) found that inadequate signage and poor infrastructure can lead to delays in seeking care, especially in emergencies. Improving signage and ensuring that healthcare facilities are well-marked could have a low-cost, high-impact benefit in reducing delays, especially for women who are unfamiliar with the healthcare settings.

The availability of public transport was cited by 87% of respondents as a factor affecting access to healthcare, particularly in rural areas. In many low-income and rural areas, there is limited access to public transportation, forcing women to rely on private means, which may be unavailable or unaffordable during emergencies. This highlights a significant barrier to timely healthcare access, which has been documented in other studies, such as Kowal et al. (2018) that found public transportation to be a crucial factor in determining access to health services. The lack of reliable public transport means that many women may not be able to reach health facilities in time for deliveries, especially during emergencies. Addressing this gap by improving public transport services could significantly enhance access to maternal healthcare.

The study found that 91% of respondents believed that low-income women are most affected by physical accessibility challenges. This aligns with broader public health research that shows social inequality and poverty are major determinants of health outcomes. Gage (2007) found that lower-income women are more likely to face significant barriers to accessing healthcare, including distance, cost, and lack of transportation. Vulnerable populations, particularly in rural or underserved areas, are more likely to experience maternal health complications due to the compounded effects of financial strain and limited access to essential services.

CONCLUSION

The findings emphasize that physical accessibility is a crucial determinant of maternal health outcomes in Garissa County. Geographical isolation, poor infrastructure, inefficient emergency services, and limited transport options all contribute to delays in seeking maternal care, which increases the risk of maternal complications and deaths. Addressing these challenges through targeted infrastructure investments, improved transportation systems, and enhanced emergency care services could significantly improve quality maternal care and overall maternal health outcomes in the region.

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