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Building Resilient Patient Referral Systems in Rural Districts: A Qualitative Study in Ghana

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Abstract: Health system resilience partly depends on robust primary health care systems that are well-linked through functional referral systems. The study explored how referral system challenges are addressed in a poor rural Bongo district to support maternal and newborn care in Ghana. Bongo district was purposively selected for the study. Data were collected from purposefully sampled district, sub-district and facility level health managers, frontline staff and community-level opinion leaders using interviews and focus group discussions. A 3-week participant observation was also conducted in the Bongo-Soe health centre. The data were transcribed and uploaded onto NVivo11 where codes and themes were generated. The findings revealed an integrated referral system, supported by a teleconsultation system which enabled free phone calls between the staff. However, there were some challenges that needed to be resolved to increase the referral system's robustness. Referral transportation challenges included lack of ambulance services, poor road network, and inability to pay transportation cost. Again, inadequate staffing and patients resisting referrals threatened the functioning of the referral system. Improving referral systems and ensuring viable ambulance services are essential for achieving health systems resilience in poor rural areas. It requires cross-sectoral action beyond the health sector to other sectors. The findings of the study will contribute to building a resilient patient referral system in rural areas, especially for maternal and newborn care. In addition, it adds to existing knowledge on referral systems in Ghana.

Keywords: Referral system, maternal mortality, resilience, Bongo district.

1. INTRODUCTION

Maternal mortality, the death of a pregnant woman due to pregnancy-related complications or within 42 days of termination of pregnancy, continues to be the most formidable challenge for several countries (Apanga & Awoonor-Williams, 2018). Notably, resource-poor countries are known to account for 99% of these deaths

(Sumankuuro et al., 2018), with Sub-Saharan Africa (SSA) disproportionately contributing more than half of these deaths (Apanga & Awoonor-Williams, 2018). Despite progress in reducing maternal deaths, recent maternal mortality ratio (MMR) figures in SSA stood at 302 deaths/100,000 live births in 2021 compared to other sub-regions in Africa with Western sub-Saharan Africa recording the highest mortality of 334 deaths/100,000 live births (Adu & Fordjour, 2023). Challenges of this phenomenon could include the availability of minimal resources for determining causes of death for mothers, especially in low-income countries (Mcclure et al., 2015). In addition, most developing countries are still struggling with the effective referral of patients from one health facility to another (Daniels & Abuosi, 2020) and health systems mostly do not favour the effective use of lessons from maternal death reviews to improve maternal survival (Magoma et al., 2015). Meanwhile, preliminary research consistently reported the importance of improving hospital and community referral systems between skilled birth attendance and hospitals or from hospital to hospital to provide basic and comprehensive emergency obstetric care (Miller & Smith, 2017).

Even though referral hospitals in Ghana have seen a disproportionate number of maternal deaths (Ramaswamy et al., 2016), the country has realized some gains in reducing maternal deaths since 1990 (Kyei-Nimakoh et al., 2016). As indicated by Boafor and colleagues, the current maternal mortality ratio stands at 310 maternal deaths per 100,000 live births (Boafor et al., 2021). This maternal death record is likely to be associated with service and referral challenges in Ghana, where most maternal health cases are emergency. In assessing these emergencies, Koblinsky and colleagues (2015) found as few as 17% deliveries at the primary level meeting criteria of good clinical practice in Ghana. Nationally, obstacles to appropriate maternal health care as cited in literature include the poor transport systems (Apanga & Awoonor-Williams, 2018), provider decision making on management choices and poor referral practices in health facilities (Oduro-Mensah et al., 2021). Other studies have also suggested lack of financial means, absence of family aid during emergency delivery, cultural beliefs and distance to health facility as major barriers to maternal health care (Ganle et al., 2014; Kyei-Nimakoh et al., 2017). Aside this, most referral delays in Ghana are further exacerbated by the lack of electronic referral systems between hospitals (Amoakoh-Coleman et al., 2019), causing further delays in the transportation of pregnant women with complications.

While several studies have assessed the challenges of maternal health care at the facility level (Banchani & Tenkorang, 2014; Harahap et al., 2019) mostly using quantitative methods, only limited literature have employed qualitative methods in evaluating the referral challenges of maternal health care in rural communities in Ghana (Ameyaw et al., 2021). Similarly, most surveys done in this region have focused on other districts to the neglect of the Bongo District. There also exist a dearth of literature and information in the district to support policy and programmes towards enhancing patient referrals to avert maternal mortality. Consequently, the current study explored how the referral system challenges are addressed in a poor rural district to support maternal and newborn care in Ghana.

2. MATERIALS AND METHODS

2.1. Study Site and Design

Bongo district is in the Upper East region of Ghana. It is predominantly rural, and characterized by large household sizes, high population density, and high fertility rate (Ghana Statistical Service, 2014). It had one district hospital, six sub-district health centres and 35 functional Community-based Health Planning and Services zones serving a population of approximately 84,545. This study was part of a case study of three rural districts conducted in the northern, middle and southern belts of Ghana, where Bongo district participated as a nucleus district (Bawontuo et al., 2021, 2022). Stake (1994) described a case as either single or complex, one among others, specific and bounded, and usually have internal and external characteristics (such as context). In this study, the case was defined as the Bongo district bounded by the district health directorate, the district hospital and the Bongo-Soe health centre. Cross-sectional exploratory study involving mixed data collection methods; a 3-week participant observation at the Bongo-Soe health centre, 3 in-depth interviews, as well as 4 focus group discussions, were implemented in the case district in order to gain a detailed understanding of the referral challenges, and how these challenges were addressed to avert maternal deaths.

2.2. Study Population and Sampling

Study participants included managers of the district health directorate, hospital and Bongo-Soe health centre, as well as frontline healthcare providers of the hospital and the health centre at the time of the study. The Bongo-Soe sub-district opinion leaders including assemblymen, unit committee members, elders in the community, also participated in the study. In this study, the District Director of Health Services, Hospital Medical Superintendent, Bongo-Soe sub-district leader and seven core management team members of the District Health Directorate and Hospital, at the time of the study, were purposively sampled because of their managerial roles to healthcare delivery in the case district. Again, 16 frontline healthcare providers involving heads of service delivery sections of the hospital and the health centre, at the time of the study, were purposively sampled because of their contribution to healthcare delivery in the case district. Finally, 10 community-level opinion leaders, at the time of the study, were purposively sampled because of their contribution to healthcare delivery at the community level. In this study, these sampled participants provided sufficient data to analyse how patient referral challenges were addressed towards building a robust referral system in the case district.

2.3. Data Collection

A 3-week participant observation, in-depth interviews and focus group discussions constituted the data collection methods in the case district. As part of the observation, the researcher actively participated in the daily activities of the health centre, but worked predominantly at the laboratory, since he is a biomedical laboratory scientist by profession. The researcher also used his personal car to transport referred clients to the district hospital at no cost. Three in-depth interviews were conducted with the District Director of Health Services, Hospital Medical Superintendent and the Bongo-Soe sub-district leader. Also, 4 FGDs were conducted among selected district health managers, frontline providers in the hospital and health centre, and the community-level opinion leaders. Interview and FGD guides with probes and prompts on the referral system in the case district were used to support the data collection process. Interview and FGD dates, times and meeting venues were pre-arranged with the participants in order to ensure commitment. All interviews and FGDs were tape recorded alongside note taking.

2.4. Data Analysis

Voice-recorded interviews and FGDs were transcribed verbatim. The transcripts of the voice-recordings were cleaned and imported into the Nvivo (version 11) platform. The analysis was done using the inductive content analysis approach by coding to identify common patterns and inconsistencies. Common patterns in the data set were categorised into three themes: transportation of referred cases (sub-themes were; lack of ambulance or portable vehicles, cost of transportation, and road network); patients resisting referrals; and inadequate midwives in the district.

2.5. Ethical Considerations

Ethical clearance was received from the Ethics Review Committee of the Ghana Health Service (GHS-ERC: 03/11/15) as part of the lead researcher's PhD project to conduct the study. The researcher gained entry into the district through an introduction letter from the Upper East regional director of health services. At the district level, the District Director of Health Services introduced the researcher to the hospital and the Bongo-Soe health centre. Participants filled and signed written informed consent forms before data collection began. To protect the identity of the study participants, pseudonyms were used. The entire methodology followed religiously the guidelines of the Ethics Review Committee of the Ghana Health Service.

3. RESULTS

The data analysis revealed that, at the time of the study, the referral system links the peripheral health facilities such as health centres, clinics and CHPS zones to district hospitals. Participants reported that the linkage between these district health facilities promoted collaborative efforts in the provision of maternal health services in the district. The collective efforts of healthcare providers in this collaborative relationship between the district hospital and the peripheral facilities had a positive impact on maternal health outcomes in the district. For instance, one participant indicated that:

> […] *we talking about zero maternal death and this cannot happen without the collaboration between the hospital and the peripheral health facilities. Because the hospital serves just a small area, and the health centres and their CHPS compounds are dotted around the communities, if there is no collaboration the pregnant women will die* […] IDI_P03

In this way, pregnant mothers who are first seen at the community levels are referred to the district hospital for further management where the need arises. One participant indicated that:

> […] *we have a referral system that links pregnant mothers at the peripheral areas to the hospital for further medical care* […] IDI_P01

The referral system promotes a two-way relationship between the district hospital and the peripheral health facilities to promote continuity of care. It was reported that the district hospital not only receive referred maternal cases from the community levels, but also refers maternal cases back to the communities for home-based management. In this way, caregivers and/or community health workers follow guidelines from the district hospital to further manage maternal cases at home. Thus, it was reported that these efforts improve maternal health outcomes in the district. One participant indicated that:

> […] *after a woman delivers at the hospital, the name and address of the woman are sent to the nearest CHPS compounds for follow-up case management at home. These are measures put in place to reduce maternal and infant deaths* […] FGD_DHFP_P06

In spite of the reported functions of the referral system to support maternal health outcomes, the analysis revealed that the referral system faces some challenges in the district. These challenges, consequences, and remedies of the referral system in the district are summarized in Figure 1.

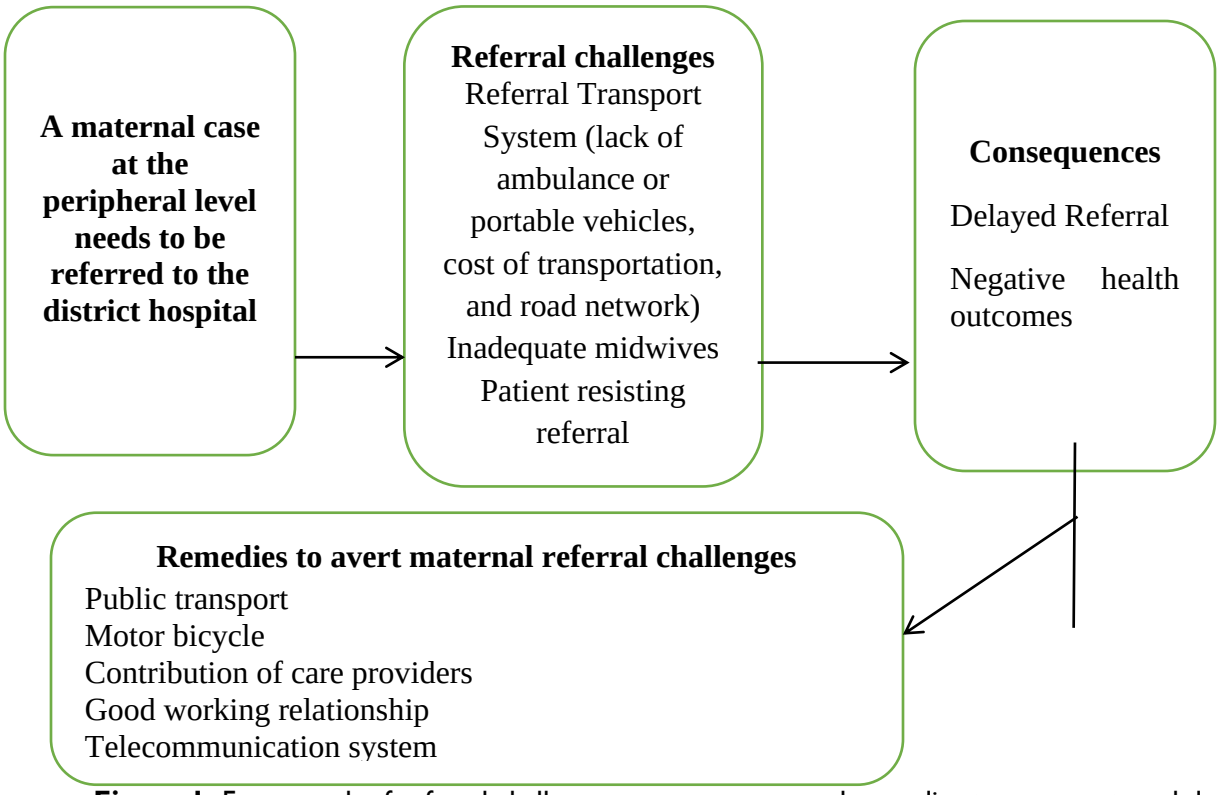

Figure 1: Framework of referral challenges, consequences and remedies to avert maternal deaths

Referral Challenges

The data analysis revealed that transportation of referred maternal cases and inadequate staffing at the peripheral health facilities affect the quality of maternal case referral system in the district. Participants reported that the safe and timely transfer of maternal cases from the peripheral levels to the district hospital for further medical attention is a major concern to service delivery at the community levels. One participant indicated that:

> […] *how fast the referral mother will move for us to save the lives of the mother and child is of concern to us* […] FGD_HCFP_P07

Another participant indicated that:

> […] *we all understand that if it is a referral, then it is an emergency and it should go fast* […] IDI_P02

Referral Transport Challenges

The referral transport system posed some challenges to maternal healthcare delivery in the district:

> […] *transportation is a major problem for our referral system* […] IDI_P01

The problem of transportation resulted in delays in the management of referred cases. Participants reported that those referred cases did not get to the district hospital in good time, all because of transport-related challenges. One participant indicated that:

> […] *you can refer a case and the case will need to get to Bongo early within 20 minutes but because of transportation the case can be here for more than one hour* […] FGD_HCFP_P07

The participant further indicated that the transport related challenges, were likely to result in negative maternal health outcomes:

> […] *supposing it is a bleeding case, you have prepared the patient for referral, but because of transportation it can delay you in such a way that if care is not taken anything can happen to the patient* […] FGD_HCFP_P07

Three transport-related challenges were identified, namely, lack of ambulance, inability to pay transport fares and poor road networks.

Lack of Ambulance and Related Remedies

First, the district had no ambulance. As part of quality healthcare delivery in the decentralized health system, health centres and district hospitals are expected to have stationed ambulances, well-equipped to take sick or injured persons to and from these facilities to the next level of care.

> […] *the hospital has no ambulance, and the district has no national ambulance* […] IDI_P03

Peripheral level facilities in the district had no vehicles to transport pregnant mothers who were referred for further medical attention at the district hospital level. One participant indicated that:

> […] *you have been here for two weeks now and you can see that the health centre has no ambulance or any vehicle* […] IDI_P02

As remedy to the no ambulance challenge, pregnant mothers who were referred from the peripheral health facilities resorted to public/private transports such as taxi and motor bicycles. Pregnant mothers were carried on motor bicycles to the health centres for care, and from health centres to the district level, even in times of emergency. For instance, one participant indicated that:

[…] *we depend on public transport (taxis) or use motor-king to transport people who are referred* […] FGD_COL_P03

Another participant recalled:

[…] *just imagine the emergency case I had the other night; it was good your car was available and you agreed to come and help carry the pregnant mother to Bongo; what would I have done?* […] FGD_HCFP_P07

Where the pregnant mother was transported using a motorbike, the referred mother could not be accompanied by a qualified midwife as required by the Ghana Health Service protocols on patient referral. This situation occurred because motor cycles can carry only one passenger at a time. As to how such challenges were remedied, some midwives sometimes used their own motor cycle to accompany pregnant mothers. A participant indicated

[…] i*n such cases, midwife will ride her motor and follow them to the Bongo, just in case something happens on the way* […] FGD_HCFP_P01

Another participant reported:

[…] a*t times, I used my own motorbike and fuel to carry or accompany pregnant mothers to Bongo, the facility do not give me fuel, I do it from my heart* […] FGD_HCFP_P07

In critical situations, healthcare personnel went extra miles to convey both pregnant mother and relative on one motorbike, endangering their lives.

[…] *if a case needs urgent transfusion and because of transportation the case is delaying, at times, our nurses have to carry them, we carry the client and the relative on the same motor; we don't even care what time. it can be midnight whatsoever, and it even pose danger to we ourselves* […] IDI_P02

Inability to Pay Transport Fares and Related Remedies

Secondly, another challenge was the cost of transportation. Some referred pregnant mothers were unable to pay the costs of transportation to the district level. One participant indicated that:

[…] *the financial constraint is a major factor. For instance, the medical assistant once referred a case to Bongo hospital, and the patient told her to give money for transportation and feeding* […] FGD_HCFP_P05

Other participants indicated that:

[…] *our people are poor, so if you want them to pay for the services, people might decide to stay at home* […] FGD_COL_P06

[…] *at times pregnant mothers resist referral to the hospital with reasons such as they do not have money* […] FGD_HCFP_P04

As part of remedy to the challenge of inability to pay transport costs, healthcare providers at the peripheral level provided support to transport pregnant mothers who were referred to the next level. One participant revealed that:

[…] *sometimes midwife has to use her own money to pay for taxi drivers or use her own motorbike to carry the pregnant women to the hospital* […] IDI_P01

Poor Road Networks

Thirdly, poor quality of the road network in the district was a third challenge associated with the transportation of pregnant mothers from the peripheral health facilities to the district hospital. The district had very poor roads linking the various communities to the district capital. These roads were untarred, and had potholes and trenches due to erosion from the rains. Some communities were hard-to-reach, and this was a challenge to health service delivery:

> […] *vehicles cannot even get to some facilities because of the bad road network, so that is the problem* […] FGD_COL_P02

The study found that the roads in the district were worse during the rainy season. Participants reported that the roads were flooded with water and usually very muddy during the rainy season. In such situation's, affected roads were not accessible as one participant indicated:

> […] *in the rainy season, the roads are not accessible, so it makes it difficult for vehicles to go to some communities* […] FGD_COL_P07

Consequently, the poor quality of road networks in the district affected maternal health outcomes in the district. One participant indicated that:

> […] *by the nature of the roads, when transferring a pregnant mother, if care is not taken, she could have stillbirth* […] FGD_COL_P01

Another participant narrated this:

> […] *you can imagine a pregnant woman carrying twins have come to deliver and was able to deliver the first twin, but the second twin retained; we put this client in the motor-king and by the nature of our roads, before we got to Bongo the baby came out dead; fetal heartbeat and everything was good, the baby was not supposed to die, but because of the nature of our roads* […] FGD_HCFP_P07

Inadequate Midwives and Related Remedies

The inadequate number of midwives stationed at the health centre levels was a major challenge to the provision of effective maternal healthcare in the communities. Participants reported, that pregnant mothers acknowledged health centres as their first point of call for maternal healthcare in the district. It was observed that midwives were stationed in health centres to provide needed maternal and skilled delivery services at the community levels. Participants reported, at the study period, that stationing a midwife at the health centre level saved pregnant mothers in communities from travelling long distances to access these services. A participant reported:

> […] *more especially to our pregnant women, it used to be very hard for them during delivery. If a woman is in labour and she has to go all that way to Bongo or to Bolga, it becomes a problem, but now that this health center is here, we have a midwife, so the least case that we have concerning delivery it is immediately attend to and it has saved a lot of lives. This is a very important aspect of the facility being located here* […] FGD_COL_P05

However, the number of midwives stationed in health centres was inadequate to meet the maternal and skilled delivery demands of communities they serve. For instance, at the time of the study, only one midwife was at post performing preconception care, antennal care, postnatal care and skilled-delivery services in the health centre, and reports indicated that an additional midwife was on maternity leave at the time of the study.

> […] *since the other midwife went on her maternity leave, midwife has been working alone doing ANC and delivery all alone* […] FGD_HCFP_P04

Accordingly, some maternal referrals from health centres to the district hospital were not accompanied by qualified midwives.

> […] *you saw my situation yesterday, how could I have left the two women in labour here and send that emergency to Bongo, it is really a problem for me here* […] FGD_HCFP_P07

As to why the number of midwives was inadequate for the demand of care, the analysis revealed that, qualified midwives were few in the system and some will not accept postings to rural areas. A participant reported:

> […] *one of the problems is that midwives posted to our districts refuse and those who come stay in the hospital and will not accept postings to the communities* […] IDI_P01

As a remedy to the unavailability of midwife to accompany a referred pregnant mother to the district hospital, nurses were asked to accompany pregnant mothers during referrals instead of the midwife.

> […] *we the nurse have been helping midwife when she is busy specially to accompany pregnant mothers to Bongo* […] FGD_HCFP_P06

Patients' Resistance of Referrals and Related Remedies

Some pregnant mothers resisted or refused referrals from peripheral health facilities to the district hospital. The pregnant mothers gave reasons such as, they were going to the district hospital to see same nurses and midwives, and were not motivated to accept the referral. One participant reported:

> […] *about the referral system, most at times, the patient themselves will say they will not go, saying that you are the same nurses here, and same nurses are there, so they will not go* […] FGD_HCFP_P07

As to why patients resist referrals, participants further reported, that once a patient was referred to the hospital, the environment there was new, meeting new faces. The change of environment was reported as a reason for patients refusing referrals. One participant indicated:

> […] *one of their reasons is the change of environment; you know we are in their community, we enter their markets, sometimes we go to their schools for health talks, so they are used to us. But for them (patients) to move into a different community that they (hospital staff) don't know them (patients), they (patients) wouldn't know how to associate with them (hospital staff)* […] FGD_HCFP_P06

Again, patient perception of the referral contributes to the resistance of patient to accept referrals from lower to higher levels of care. Community members perceive that people who are referred have serious medical conditions, and are sent away to die. One participant reported:

> […] *they think they are going to die (laughing) because I remember some time ago a patient was referred, and they refused to go, standing there crying and saying that maybe the baby is dying* […] FGD_HCFP_P03

As to how to avert patients resisting/refusing referrals from one level to the other, continuous patient education and counseling on health and health delivery systems are likely to reduce incidence of patients refusing or resisting referrals to the nest level of care. Community sensitisations at the individual patient level, family relations/ patient caregivers' level and the entire community level have the potential to improve knowledge of communities on the health delivery system. One participant indicated:

> […] *we have to keeping telling and educating them about how we operate here, they don't know. Whenever we do community durbars, we tell them all these things, we will keep educating them* […] IDI_P02

Other Remedies to Avert Maternal Referral Challenges

In addition to the use of public/private means to convey pregnant mother on referral, use of motor bicycles and tricycles (motorking) as means of transport, and health centre staff contributing to minimise referral challenges, an instituted telecommunication system created good working relationships between the peripheral health facilities and the district hospital, and contributed significantly to avert some maternal referral challenges.

Institutionalised Telecommunication System

The Bongo district health system operated a teleconsultation programme as part of improving maternal care delivery.

> […] *we have this teleconsultation programme in the district where we have about 20 telephones that have been distributed; there is one in each of the health facilities, there is one in our labour ward and one with the medical superintendent* […] IDI_P03

This instituted telecommunication system also remedied referral challenges between the peripheral health facilities and the district hospital. It allowed free and frequent communications between health centres and the district level. One participant reported:

> […] *with the telecommunication system that was brought to us, they encouraged us to call them regularly, it was free, even doctor said we should call him anytime we have emergency* […] FGD_HCFP_P03

Midwives at the health centres called and discussed maternal cases with the doctor or colleague midwives at the district hospital. By this interaction, some cases meant for referral to the district hospital were safely managed at the health centre levels with guidance from the doctor or colleague midwives at the hospital.

> […] *whenever I have a case to refer, I first call the doctor or maternity ward to discuss, sometimes doctor will guide me on the phone to manage the case. When it is successful, then I don't refer the case* […] FGD_HCFP_P07

Another participant indicated:

> […] *when there is a case at the sub-districts, they call me and we discuss. I tell them what to do, if it is not working I ask them to bring it or I move my pickup to go and pick the case* […] IDI_P03

As to why health centres consulted, shared and discussed patient information with the district hospital, the health centre staff have good working relationship with the district hospital and its staff as a higher level of care and superior to the health centre. One participant revealed:

> […] *when they are referring a case too, they call that they are referring a case so they see us as their superiors and ask for support when they need it* […] IDI_P03

The telecommunication system also minimized delays in managing an emergency case in the absence of the doctor. The district had only 1 medical doctor at post, and whenever he was not available, health centres were compelled to refer emergency maternal cases directly to the regional hospital, Bolga. These direct transfers were to avoid delays in managing the said cases and to avoid negative health outcomes. One participant narrated:

> […] *at times the doctor will not be there, like last week, he wasn't there. If I was having a critical case, I couldn't have sent her to Bongo hospital. I would have sent her to the regional hospital because if the case here is beyond me, maybe my colleagues there too can't manage it there, and will also refer to Bolga (where regional hospital is located). So that particular system was there, when you call the hospital, they ask you to refer the case straight to Bolga so we wouldn't waste time to go to Bongo and then continue to Bolga* […] FGD_HCFP_P07

This telecommunication system promoted good working relationships between the district hospital and the health centres. This good working relationship manifested in the way these health institutions connected during care delivery to improve maternal health care.

4. DISCUSSION

The study explored how and why patient referral systems in a rural district in Ghana remain resilient and robust amidst numerous patient referral challenges. The maternal referral system was explored in the Bongo district of the Upper East Region using qualitative methods of collecting and analyzing data. The study found that even though lack of ambulance, inability to pay referral transport fares, poor road networks, patient resisting referrals and inadequate midwives served as hindrances to maternal referrals from lower-level health facilities to the district hospital, healthcare providers worked to minimize the effects of these challenges on maternal and newborn care. The study found that remedies such as resorting to motorbikes, tricycles, healthcare professionals contributing their personal resources, use of telecommunication during referrals were very useful in building a robust maternal referral system in the study setting. These study findings are discussed subsequently.

First, the study revealed positive views on the need for collaborative healthcare delivery between district hospitals and their lower-level facilities. These lower-level facilities such as health centres and CHPS compounds are dotted around communities and have wider coverage in the decentralized health system. These facilities also serve as the main entry point into the healthcare system in Ghana. Thus, collaborative healthcare delivery in the decentralized health system has the potential to improve health delivery outcomes. It is in this vain that a research findings suggested the importance of structural collaboration between sub-district levels and Community Health Committees (CHCs) and health centers in delivering maternal health services (Sakeah et al., 2021). Again, a study findings emphasized a collaborative care between traditional birth attendance and community hospital staff encouraging early and appropriate referral of maternal cases for skilled care (Miller & Smith, 2017). Thus, a policy direction towards the timely referral of maternal cases from lower-level facilities is likely to improve maternal health outcomes.

Secondly, results from this study suggest that the referral system links pregnant women from lower-level facilities to district hospitals for specialist attention. This linkage implies pregnant mothers at the community level report first to the lower-level facilities, and where the need be, are referred to the next level for further care. However, a preliminary research on obstetric referral and facility communication processes identified some inefficiencies in the referral system, including patients bypassing the first level of care, lack of standard procedures, delays in referral and non-use of referral forms (Amoakoh-Coleman et al., 2022). It is important to note that even though Ghana operates a national health system, context plays significant role as to how individual hospitals operate within the specific referral guidelines. The contextual factors are likely to present unique referral challenges, thus explaining disparities in the findings of these studies.

Thirdly, the study found that maternal referral challenges hinder the prompt referral of pregnant mothers to the next level for specialist care. A study findings indicated that some of these referral challenges are linked to inadequate resources in terms of referral transport, poor road networks and inadequate midwives (Atuoye et al., 2015). Similarly, some studies have documented the difficulties of hospitals to resource referral systems as major challenges facing maternal healthcare referrals (Amoah & Phillips, 2017; Daniels & Abuosi, 2020). Again, the challenges of hospitals in providing reliable transportation systems for maternal referral is somewhat a national problem (Apanga & Awoonor-Williams, 2018), as well as a bigger challenge in most African countries (Amoah & Phillips, 2017). Meanwhile, under the "one constituency one ambulance" policy, the Bongo district hospital received an ambulance in February 2020. Even though one ambulance is not sufficient for the district, it will greatly impact on the emergencies and referrals in the district.

Furtherance to the referral transport situation, the study found that pregnant mothers in these rural communities are unable to pay for alternative transport arrangements to convey them to the hospital. Financial constraints among pregnant mothers seeking healthcare have contributed to poor health outcomes. Even though this study did not report any adverse health outcome among pregnant mothers due to financial constraints, a study conducted in rural Pakistan to investigate the financial and social barriers of women's access to skilled

delivery have emphasized financial constraints as a major factor contributing to maternal mortality (Shaikh et al., 2017). One major health policy implemented in Ghana to reduce maternal financial challenges is the free maternal health care policy, through the national health insurance (Kyei-Onanjiri et al., 2018). However, most essential medications and services are excluded from the list of services to be provided to mothers, and this explains why women in Ghana still face financial constraints during delivery or when referred to more expensive facilities (Amoah & Phillips, 2017). Meanwhile, a numbe4r of studies have consistently highlighted the importance of and availability of ambulance in reducing maternal mortalities (Oduro-Mensah et al., 2021). Ghana's policy on "one constituency one ambulance" seems to provide solutions to this "no ambulance syndrome", however, the systemic challenges of operating this national ambulance service presents a mirage solution to our maternal referral system. For instance, Ghana recorded avoidable maternal deaths, in recent times, involving the national ambulance service.

In addition, the study found poor road network as a major concern during patient referrals, especially during the rainy season. The study participants reported poor delivery outcomes due to the bad road connectivity between health facilities in the district. Findings of this study are similar to other study findings where maternal mortality were characterized by scarcity of vehicles, poor road networks, and geographic barriers to reaching health services (Atuoye et al., 2015; Patel et al., 2016). A policy direction towards improving road networks in communities has the potential to greatly increase maternal health outcomes in Ghana. The contribution of good roads towards improved healthcare have been documented in Busia District of Uganda where road network between facilities are said to be fairly connected and contributes in limiting maternal mortality (Anyait et al., 2012). The issue of poor road network is particularly prominent in most African countries, but several countries have made efforts in the recent past in fixing this problem relating to health service delivery.

Again, among the referral challenges is the issue of inadequate midwives. The study found that Bongo district, at the time of study, had limited midwives positioned at the lower-level facilities to provide maternal care services. These findings are consistent with findings of a study conducted on the perceived barriers to maternal and new born service delivery, where inadequate midwives and critical medical staff were cited as underlying factors increasing maternal mortality rates (Sumankuuro et al., 2018). In countries like Ghana and most other African countries, most health staff are stationed at the urban health centers, limiting maternal health services in rural settings. This skill imbalance usually correlates with both complicated and uncomplicated deliveries as well as the survival rates of new-born and their mothers (Srofenyoh et al., 2016).

Aside the resource-related referral challenges, the study found that some maternal mothers resisted referral to the next level of care. In such situations, healthcare providers use various means including extensive counseling to get patients to say no to referrals to change their minds. This finding is consistent with the study by Albury and colleagues who concluded that patient refusal to referrals have the potential to create negative consequences on care delivery outcomes (Albury et al., 2022).

Fourthly, the study found that, as a result of referral challenges, study participants reported delays in maternal referrals from lower-level facilities to high levels for further treatment and management. Referral delay is one of the main maternal health service challenges facing Ghana as a country, not only due to lack of transportation in the health sector but also a challenge of the ambulance system working in isolation with the referral system (Daniels & Abuosi, 2020). Referral delays are likely to result in poor health outcomes. For instance, in a study conducted in other parts of the country, referral delays have been recognized as one of the major contributors to maternal mortality (Goodman et al., 2017). Even though much has been said about delays in the referral system, little about delays at the facility is done once the woman reaches the health facility. It is important to identify systemic delays at every level, so that policies will be aimed at eliminating barriers at the different referral points.

While Ghana has a well-organized and decentralized health system, a robust referral system is needed to ensure a complete network of practice among health facilities operating in the decentralized health system. The findings from this study are important inputs into building a standard referral system for rural settings in Ghana, reflecting the necessary conditions for the existence of an internationally recognized World Health Organization referral system. However, this study was conducted in only one district out of the 274 districts in Ghana. The findings are thus limited to the study district and may not be generalized to the remaining districts in Ghana. But these findings can be applied to all deprived districts where referral challenges including poor referral transport

system, bad roads connecting health facilities, and inadequate number of midwives working in health facilities, need to be addressed in order to build standard and robust referral systems to support patient health outcomes in these districts.

5. CONCLUSION

The study meticulously examines the structure of the referral system in economically disadvantaged rural districts, revealing it to be surprisingly robust and resilient. This system demonstrates a commendable capacity to persistently address and overcome the challenges associated with medical referrals in these regions. However, the research also highlights significant obstacles that hinder the efficacy of this system, notably the delays in patient referrals. These delays are primarily attributed to the inadequacies of the referral transport network and the concerning shortage of midwives stationed at healthcare facilities. Such shortcomings are pinpointed as critical factors that potentially deteriorate maternal health outcomes, underlining a pressing need for systemic improvements. In light of these findings, the study advocates for a comprehensive and inclusive multi-sectoral approach to reinforce the resilience of the health system in Ghana. It proposes an integrated strategy that necessitates the active collaboration of various governmental bodies and agencies. This includes local district assemblies, which play a pivotal role at the grassroots level, the Ministry of Roads and Transport, which is crucial for enhancing the referral transport infrastructure, the National Ambulance Authority, responsible for timely medical response and patient transportation, and the Ministry of Health, the central body for health-related policy and implementation. By synergizing the efforts of these entities, the study underscores the potential for a significant leap forward in fortifying the health system's infrastructure and, consequently, in improving maternal health outcomes in the country.

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Declaration

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