COMBATING MATERNAL MORTALITY IN THE GUSHEGU DISTRICT OF GHANA: THE ROLE OF RURAL TRANSPORTATION

Michael Poku-Boansi, Ellis Ekekpe and Agatha Akua Bonney

ABSTRACT

Governments all over the world in their quest to reducing poverty have adopted the Millennium Development Goals. These goals set the framework towards poverty reduction and reflect the national development strategies, but in spite of the efforts in achieving these goals, prospects are more uncertain for the realization of the goals of reducing maternal mortality in Ghana. Neonatal mortality rates increased from 30 per 1,000 live births in 1998 to 43 per 1,000 live births in 2003. Gaps in antenatal care, unsupervised deliveries, and inadequate postnatal care account for the high levels of maternal deaths. It is the light of the above that this study seeks to establish the relationship between rural transport and efforts in achieving a reduction in maternal mortality in Ghana. A total of 160 household questionnaires, targeted at pregnant women, lactating mothers, and women who have ever given birth, were administered. The paper establishes, among other things, that the poor state of transport infrastructures and services in the Gushegu District have adversely affected the ability of pregnant women to seek healthcare in the recognized health institutions, thereby relying on tradition birth attendants who lack the necessary skills and equipments to deal of complications.

Keywords: Rural Transport, Maternal Mortality, Poverty, Infrastructure

INTRODUCTION

Rural transport is an area receiving increasingly more attention from development specialists. Over the last decade, the World Bank, International Labor Organization (ILO), and other organizations concerned with rural development and poverty alleviation, have initiated programs and projects to understand better the role that rural transport plays in the local economy and to demonstrate the importance of rural transport (Donnges, 2001). The Overseas Development Institute (2000) has indicated that, transport is integral to attaining a livelihood and emphasized that transport problems and needs of the poor are essentially about access. Additionally, Fouracre (2001) has stated that the transport sector is associated, largely with improvement in physical capital. Therefore, access to transport and other services, such as schools, clinics, and markets, is integral and contributory to the development of capital assets. However, transport improvement, itself, does not alleviate poverty nor provide a long-term guarantee for employment, but provides opportunity to access economic, social, and educational facilities, without which such opportunity is not possible (Parikesit and Magribi, 2005).

Despite the recognition of the role of transport to development and the livelihoods of poor people, rural transport networks, in most developing countries, are underdeveloped and of poor quality (Lebo & Schelling, 2001). It is estimated that about 900 million rural dwellers in developing countries do not have reliable, all season access to main road

networks and about 300 million do not have motorized access at all (Lebo & Schelling, 2001). This situation has resulted in poor rural people having limited access to basic social services, safe water, all-year roads, and electricity and telephone services.

The paper therefore seeks to find answers to the following questions:
1. What is the nature of rural transport in the Gushegu District and its effect on maternal and child mortality?
2. What factors contribute to accessibility of health facilities in the Gushegu District?
3. What is the nature of outreach services in the District and how does the transport facilitate the service? and
4. What policy measures can help in the reduction of maternal and child mortality in the study area?

In assessing the role of transport in maternal mortality, the study hypotheses were tested. The hypotheses were as follows:
1. High transport cost to health facility in the Gushegu District does not increase the chance of maternal mortality; and
2. The longer the travel time of pregnant women to a health facility, the higher the possibility of them experiencing maternal mortality.

MATERNAL MORTALITY IN GHANA

In Ghana, the issue of maternal mortality has been of great concern. International organizations, such as UNICEF (2006) and World Health Organization (2006), have been complementing government efforts to implement relevant programs and interventions to reduce maternal mortality in the country, but it still remains high, as of 2007. The 2008 Ghana Demographic and Health Survey has stated that, the maternal mortality rate, as of the 1990s, was 740 per 100,000 live births, but has been experiencing a decline over the years to about 451 per 100,000 live births. Even though the figure may be declining, the current figures are still a source of concern, especially since there are injuries occurring from badly managed deliveries, which also lead to obstetric fistulae. According to the Ghana Statistical Service (GSS) (2008), maternal mortality is the second highest cause of death in women, aged between 15 and 49, years and that more than 10,000 of such deaths have been documented in the last decade.

The National Development Planning Commission (2006) annual progress report on Ghana Poverty Reduction Strategy Volume 1 indicates that access to health services is still limited in the country. This is attributed to a number of factors, including socio-cultural, geographical, financial barriers, and service delivery constraints. These barriers have resulted in poor utilization of health facilities in both urban and rural areas, particularly among the poor and vulnerable groups of the population. This situation adds to worsening the situation of health problems in the country, among which maternal mortality is a major part.

Progress towards the reduction of maternal mortality rate (MMR) has been very slow. Available data from the Ministry of Health revealed that, the national institutional MMR increased from an average of 1.86 per 1,000 live births in 2004, to 2.05 in 2005, with wide regional variations (National Development Planning Commission (NDPC), 2006). This, therefore, implies that it is very unlikely the MDG of improving maternal health by reducing maternal mortality rate by three-quarters by 2015 may be achieved.

This health problem is commonly bigger in rural areas, where nearly 60% of the country's population lives. The regions with the lowest level of health care provision and, hence, the greatest problems in public health are upper west, upper east, northern and central, of which the central region is in the southern part of the country (Grimbergen and Thönissen, 2007). In the northern region, for example, the ability of the poor to access health facilities that are located at considerable distances is influenced by the road infrastructure and the transportation system. This has contributed to the deplorable health situation in the region. In addition to this, the low density of the region (25.9/sq.m), coupled with the scattered nature of localities, makes the locating of health facilities difficult. This, nevertheless, does not justify the current distribution of hospital facilities in the region (Grimbergen and Thönissen, 2007).

RURAL TRANSPORT INFRASTRUCTURE AND SERVICES IN THE GUSHEGU DISTRICT

The transport system of the Gushegu District is characterized by a network of trunk roads, feeder roads, and footpaths, which are categorized into engineered, partially engineered, and non-engineered. The non-engineered roads are the majority in the district, are predominantly unpaved, and ranges in conditions of poor, fair, and good (Gushegu District Assembly (GDA), 2006). Apart from the 3.5 km bituminous surface feeder road within the Gushegu Township, all the other feeder roads within the districts are of earth or gravel surface. The feeder roads within the district are mainly connected to the major trunk roads that link the Gushegu District to other districts, namely, Karaga, East Mamprusi, and the Bunkpurugu/Yunyoo, Chereponi, Saboba, and Yendi Municipality (Gushegu District Assembly (GDA), 2006).

According to the Gushegu District Assembly (GDA) (2006), the district has three main trunk roads, which link the regional capital Tamale, Yendi Municipal, and East Mamprusi. However, these trunk roads are poorly maintained and are in deplorable states. The poor maintenance of these roads, coupled with their poorly drained nature, have resulted in erosion and potholes, making it difficult for vehicles to ply. Most of the feeder roads which are, however, maintained also connect to the trunk roads. Also found in the district are foot bridges, which connect to some villages that are out of reach, especially during the rainy season. The bridges enable inhabitants in those villages to be able to carry their farm produce to market center, have access to health facilities, and other social services.

Transport modes available within the district are characterized by motorized and non-motorized means with various carrying capacities. Head loading and walking, bicycle, donkey cart, and push cart, mainly used over short distances, constitute non-motorized modes, while motorbikes, passenger vehicles, such as minibus, midi-bus, and cargo vehicles (medium and heavy trucks), are the main motorized modes of transport in the district. Data from the field indicated that the most frequently used modes of travel are bicycles and walking. Motorized transport services are mostly found on market days, with the exception of the Metro Mass Transit Buses, which provide two round-trip,s from Gushegu to Yendi and Gushegu to Tamale. These vehicles move on a daily basis. According to the transport operators, the low volume of vehicles operating in the area is as a result of the poor nature of the roads, as it increases their maintenance cost.

The situation of limited transport services in the district has had effect on health delivery in the district. Emergency cases that occur in communities are rushed to the hospital on motorbikes, if available, or on bicycle. In rare cases, buses are hired to convey pregnant women to the hospital. When that happens, it leaves a great financial burden on families as

transport operators, in such cases, charge exorbitant fares. The poor state of rural transport in the district has made it difficult for nursing mothers to seek healthcare, as they turn to ride or walk longer distances to enjoy these services.

APPROACH AND METHODOLOGY

The study was undertaken in the Gushegu District in the Northern Region of Ghana, which is one of the deprived districts in Ghana, where access to health facilities is very poor due to insufficient health facilities and poor transport system. According to the Ghana Statistical Service (2005), the district is the most disadvantaged, with respect to location of health facilities, with 44.2% of localities beyond 25 km.

The Gushegu District is faced with a number of challenges in the health sector, among them is the inadequacy of health infrastructure, accommodation facilities for health staff, and the low number of health staff (Gushegu District Health Directorate (GDHD), 2008). The incidence of maternal mortality, according to Gushegu District Health Directorate (GDHD) (2008), is considered to be high. Additionally, there are about seventy-two communities in the district which are regarded as hard to reach by health personnel. Access to healthcare is very difficult and impossible in the raining season in these areas (Gushegu District Health Directorate GDHD, 2008). This has resulted in the very low utilization and patronage of available health facilities and services, especially supervised delivery by skilled attendants (Gushegu District Health Directorate GDHD, 2008). The people generally exhibit poor health seeking behavior and many people patronize the services of quack (unqualified) doctors and herbalists and will only report to the health facilities as a last resort (Gushegu District Health Directorate GDHD, 2008). Data for this paper were from both the primary and secondary sources. The secondary data were gathered from books, newspapers, policy documents of the District Health Directorate and the District Assembly, the Ministry of Health, the Ministry of Transport, and from journals. Examples of secondary data gathered included maternal mortality figures, number of health centers or clinics with reliable rural access, and nature of the roads. Primary data was collected from the field by the use of questionnaires, observations, and informant interviews spanning a period of three weeks in April 2009. The type of data that was collected included accessibility to health service, in terms of distance, cost of travel, and waiting time. Other primary data collected included unit cost per coverage of outreach service, emergency patients unable to reach healthcare in time, number of children born, place of preference of birth, and ante-natal and postnatal care visits, among others.

Respondents were selected using the non-probability sampling technique. Specifically, the purposive sampling method was used in selecting pregnant women, lactating mothers, and women who had given birth before. The selection of these target groups was based on the fact that they provided the required information needed to answer the research questions. Additionally, institutions that are involved in ensuring good rural transport services such as the District Assembly's Works Department, and operators of transport services, and those that are involved in health delivery, such as the District Health Directorate and the Traditional Birth Attendants (TBAs), were also interviewed. The data gathered was analyzed using the Statistical Package for Social Sciences (SPSS). The analysis was mainly discursive using the chi-square test and independent sample t-test to derived conclusions. The testing of the paper hypothesis was done using the p-value associated with t-test statistic, which measures the weight of evidence against the null hypothesis. A small p-value gives enough reason to doubt the null hypothesis, while a large p-value gives enough reason to accept the null hypothesis. The criterion of acceptability of the test results is the 0.05 significance probability. Test values with significance probability of ≤ 0.05 provide enough evidence against the null hypothesis, while those with significant probability of > 0.05 provide

enough evidence in favor of the null hypothesis. This was to determine the significance of relevant transport related variables to the reduction of maternal and child mortality.

THE ROLE OF TRANSPORT IN ACCESSING HEALTHCARE IN GUSHEGU DISTRICT

The lack of transport and cost of transport are important reasons why people do not use healthcare services, especially services requiring a referral. Problems with transport also affect the ability of staff to deliver health services. Heyen-Perschen (2005) has indicated that 70% of the poor in Ghana cite this as one key reason for non-use of medical services. This cost, he argues, includes cost of medicine, cost of treatment, and cost of transport to and from the facility. In addition to this, physical location of health facilities does not meet household needs. In the sense that distance is regarded as a major obstacle to the rural population.

Data from the field survey revealed that 69% of pregnant women and nursing mothers visit health facilities either by walking, using a bicycle, or both. This is because motorized transport is unreliable and depending on them may result in delays, which lead to complications. Due to the use of walking and bicycling in accessing health facilities, travel time to access healthcare has adversely been affected. It was, therefore, not surprising to observe that over 64% of pregnant women and nursing mothers spent an average of 60 minutes travelling to access healthcare.

The ability to access a health facility is also dependent not only on the availability of means of transport, but also the transport cost. Due to the limited number of transport services in the district, average cost of travel was estimated to be about GH ¢1.5. This amount constitutes about 48.23% of the daily minimum wage paid in the country. With the majority of respondents engaged in crop farming and are the poorest in Ghana, this amount pose a great constraint in pregnant women accessing healthcare in the district.

ANALYSIS AND DISCUSSIONS

According to Ouman and Herselman (2008), the state of local communities in rural areas can be categorized as inadequate since the quality of medical care provided in rural areas has generally been perceived to be substandard to that of the urban settings. The reason is that rural inhabitants are, in general, more likely than urban inhabitants to have lower educational achievements, to experience high unemployment, and to live in poverty. They further argued that when it comes to access to healthcare, the rural population has been viewed as vulnerable because of the poorly developed and fragile health infrastructure, high prevalence rates for chronic illnesses and disabilities, socio-economic hardships, and physical barriers, such as distance, including lack of public transportation. Access to quality care is, therefore, important to eliminating health disparities among people in both urban and rural areas. In view of this, an accessibility analysis was carried out to give a pictorial view of how services or facilities are located in the Gushegu District.

Considering the fact that distance and time play crucial role in healthcare delivery and coupled with the fact that data from the field have revealed constraints associated to them, a physical accessibility map was prepared for the study area. Physical accessibility is the amount of time and the distance with which people must cover one place (origin) to another (destination) and back to enjoy a facility. Measuring physical access of individuals and population to health facilities or other public services is crucial in planning the opening of new health facility, evaluating programs impact and understanding changes in fertility and mortality (Rosero-Bixby, 1993).

Based on the fact that the main mode of transport in the district is by roads and footpaths, of which most of them (roads and footpaths) are difficult to move on in the rainy season, this means that they serve as an impediment for accessing healthcare. Also, distance and unavailable suitable means of transport to health facilities also contribute to the reduction in access to healthcare. The survey revealed that the main means of transport used to the health facilities in the district is by the use of a bicycle. However, walking is considerably done if the health facility is not far from home.

This was done to give a vivid view of the nature of accessibility to health facilities in the district. In the preparation of the accessibility map, accessibility standards, with respect to travel time to health facilities, was adopted from a guide on the District Poverty Profiling and Mapping by Nkum and Associates (2003).This guide was used in preparing poverty profiling and mapping across the country. The guide indicates that for a client to be within high access of a higher health facility (such as a Hospital), the maximum time travelled should be 30 minutes and for a lower level health facility, for example a health center, Community Based Health Planning Services (CHPS), and clinics, it is 20 minutes.

The standards used include the following:

Maximum travel time to Hospital   =   30 minutes

Maximum travel time to Health Center/Clinic/CHPS   =   20 minutes

Maximum travel speed along a second class road   =   45km/hour

Maximum travel speed along a third class road   =   20km/hour

Maximum travel speed by walking   =   4km/hour

Using the outlined standards, Figure 1 presents the results of the optimum accessibility to health facilities in the Gushegu District. From Figure 1, it can be seen that most parts of the district are inaccessible to any of the health facilities in the district. This partly explains the high incidence of maternal deaths recorded in the area.

Figure 1: Health Facilities Accessibility Map
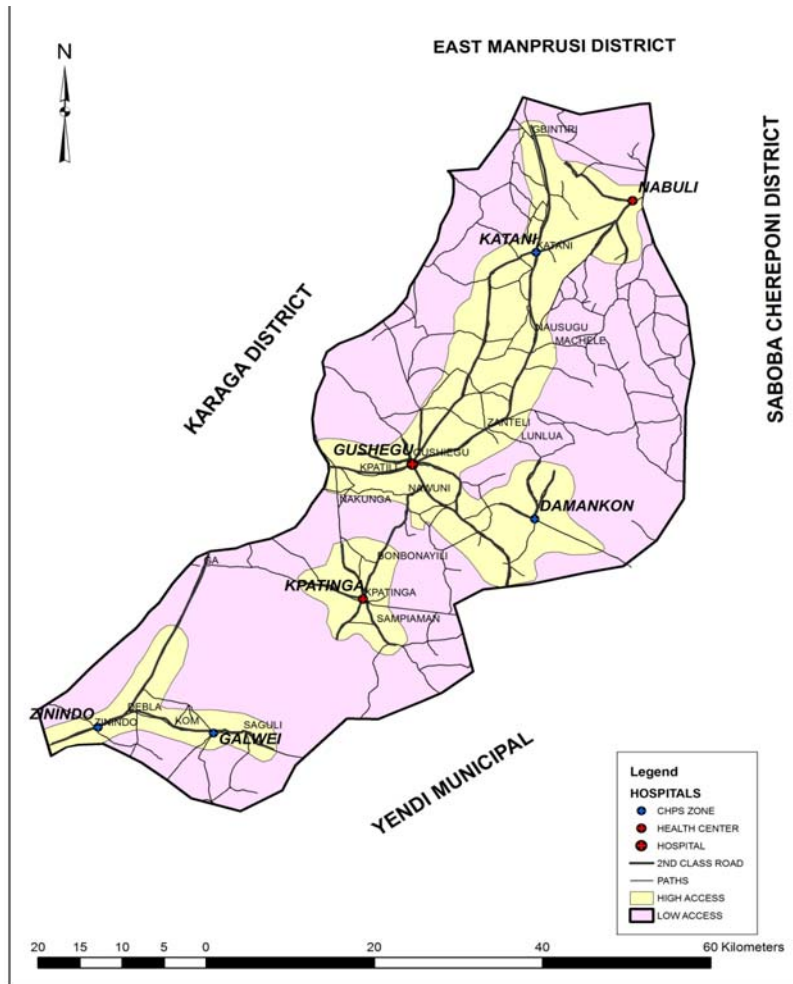
Source: Authors Construct, 2009.

To test the first hypothesis, the longer the travel time of pregnant women to a health facility, the higher the possibility of them experiencing complications, which could lead to death, shows a t value of 6.218 with significance probability of 0.00 which provides evidence in support of the null hypothesis. The implication of this is that on the basis of the data gathered from the field the null hypothesis, the longer the travel time of pregnant women to a health facility, the higher the possibility of them experiencing maternal mortality can be accepted.

According to Kvale, Olsen, Hinderaker, Ulstein and Bergsjø (2005), reduction in the number of maternal deaths in relation to pregnancy and childbirth can be achieved through an improvement of emergency care and reduction in delays of seeking care, through improvement of antenatal care, a general health promotion, and disease prevention activities. They further indicated that the causes of maternal deaths can be classified into three phases of delay:

1. Delay 1- delay of a patient in deciding to seek appropriate medical care in time;
2. Delay 2- delay in reaching an adequate healthcare facility; and
3. Delay 3- delay in receiving adequate healthcare at the facility, including delay in referral.

It is worth noting that transport has a very significant role in reducing the delays, as indicated above. Data from the field survey indicated that 34% of respondents have had unsuccessful deliveries at a point in time. The number of unsuccessful deliveries ranges from one to about six. These unsuccessful deliveries were a result of still births and breached labors.

It was further revealed that there was a strong relationship between these unsuccessful deliveries and the failure to seek ante-natal care. This is because all those who reported unsuccessful deliveries had not gone for ante-natal care and, generally, delivered the babies in the homes or with the assistance of Traditional Birth Attendants.

A test of the second hypothesis, high transport costs to the health facilities in the Gushegu District does not increase the chance of maternal mortality, also showed a t value of 2.895 with significance probability of 0.63, which provides evidence against the null hypothesis. This implies that on the basis of the data gathered from the field, the null hypothesis can be rejected, that is to say, higher transport cost adversely affects maternal mortality.

These findings go to support the assertion of Forster (2008), which is access to efficient, affordable, and safe transport in the developing world is limited and directly impacts the ability of individuals to seek timely health services.

Due to the relatively difficult access to most parts of the study area, the District Health Management Team (DHMT) has instituted outreach services aimed at addressing the needs of the people living far from health facilities in the Gushegu Districts. The outreach services ensure that health personnel visit the less accessible communities once every month to provide them with both curative and preventive services. In all, the seven health facilities in the Gushegu District have a total of 352 communities to serve, as well as 103 outreach points, as can be seen in Table 1.

Table: 1: Health facilities and their number of outreach points

No.	Health Facility	Number of Communities	Outreach points
1.	Gushegu	141	25
2.	Katani	70	15
3.	Kpatinga	35	15
4.	Zinindo	5	5
5.	Galwei	19	19
6.	Nabuli	70	12
7.	Damankon	12	12
Total		**352**	**103**

Source: Gushegu District Health Directorate, 2009.

Data from the field survey indicates that even though some visits were made to the outreach points, most of these points were left out. The inability to visit all outreach points was basically due to some challenges encountered. These challenges include:

1. Inadequate and unreliable transport services;
2. Excessive use of fuel due to the poor state of roads leading to the outreach points; and
3. Poor remuneration for staff who visits these outreach points.

CONCLUSION

The paper has demonstrated how imperative rural transport is in accessing healthcare in the Gushegu District of Ghana. The paper has revealed that the nature of rural transport was generally poor, resulting in the difficulty of accessing healthcare. It has further been established from the analysis, that the poor state of transport in the district has also affected attendance to ante-natal care by women, most of who indicated that inadequate transport was a major constraint.

A cursory look at the findings gave an indication that rural transport is essential in increasing access to healthcare, in general, and maternal mortality, in particular. This, therefore, calls for conscious efforts in improving rural transport infrastructure and services, especially those leading to health facilities in order to reduce the cost and time of travel, especially by pregnant women. This will set the tone in Ghana's quest to reducing maternal mortality and the achievement of the MDG on reducing maternal mortality.

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