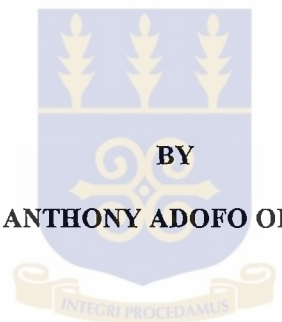
FACTORS AFFECTING UTILISATION OF MATERNITY SERVICES IN THE YENDI DISTRICT OF THE NORTHERN REGION OF GHANA



BY

ANTHONY ADOFO OFOSU

A DISSERTATION

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DECLARATION

I hereby declare that this dissertation was prepared by me under supervision, and submitted as part of the requirements for the Masters in Public Health Degree of the School of Public Health, University of Ghana, Legon

Field Supervisor

Dr. John Abenyeri

Anthony Adofo Ofosu

Academic Supervisors

Dr. Edith Tetteh

Dr. K. A. Senah

This Dissertation is dedicated to my wife Esther and my son Kevin, for their love and support which made all this possible.

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LIST OF ABBREVIATIONS

ANC	Antenatal Care
DCE	District Chief Executive
DHMT	District Health Management Team
GDHS	Ghana Demographic and Health Survey
GES	Ghana Education Service
GPRTU	Ghana Private Road and Transport Union
JSS	Junior Secondary School
M.O.H	Ministry of Health
MCH/FP	Maternal, Child Health/Family Planning
NGOs	Non- Governmental Organisations
SSS	Senior Secondary School
TBAs	Traditional Birth Attendants
UNFPA	United Nation Population Fund
UNICEF	United Nations Children Fund
WHO	World Health Organisation
WUSC	Women Universities of Canada

SUMMARY

A cross-sectional study was conducted in the Yendi district to find out significant background characteristics and factors that differentiate women who attend prenatal service but deliver at home unsupervised, from those who attend prenatal service and had supervised delivery

Interviews using a structured questionnaire were conducted. The study sample consisted of 400 women and 273 men selected through three steps multi-stage sampling technique from the 6 sub-districts in the district.

Factors found to be consistently associated with supervised delivery in women attending prenatal service were, maternal age, ethnicity, occupation, place of residence, distance from health facility; access to trained personnel, financial constraints, ease of getting a vehicle to place of delivery, husband's educational level and occupation.

Where women had access to either trained TBAs or midwives, there was no difference between their utilisation by the women who attended prenatal service. Most husbands who make the decision about where the woman should deliver, said all other barriers to access taken care of, they will prefer their wives to deliver at the health facility with the midwives because it is safe.

To improve supervised delivery in the district, there is the need to adopt a multi-sectoral approach involving all the stakeholders in health in the district to improve geographical and financial accessibility to supervised care.

CHAPTER 1

INTRODUCTION

1.O BACKGROUND INFORMATION

On a global basis, an estimated 585,000 women die each year due to complications of pregnancy and child birth. Most of these deaths occur in developing countries (Fathalla, 1998). The majority of these maternal deaths occur around the time of delivery and so a lot of effort has gone into identifying and providing effective and appropriate delivery care to prevent deaths (Winkoff, 1988; Bullough et al., 1990).

Unfortunately, in the developing countries many mothers do not have access to modern health care services. It is estimated that 60- 80% of births in developing countries occur outside modern health facilities. (WHO/ UNFPA/UNICEF, 1992) Untrained persons attend to majority of these births. The problems which arise during childbirth may not be recognised by untrained attendants and often result in death. Some complications can set in very suddenly and dramatically (WHO, 1996). There is also an excess of neonatal mortality in home childbirth with untrained attendants (Schramm et al., 1987).

To help reduce this high maternal mortality and perinatal mortality the Safemotherhood Initiative was set up (Mahler, 1987). This initiative seeks to reduce maternal and perinatal mortality in a variety of ways. These include improved access to family planning, birth spacing, provision of prenatal and delivery services. No one component by itself can reduce maternal and perinatal mortality, because the causes of maternal mortality are multi-factorial.

In Ghana, this situation of low continuum of care, is similar to that of other developing countries. Supervised delivery in the Ministry of Health context, is delivery assisted by trained Traditional Birth Attendants (TBAs), nurses/midwives and doctors (Ghana Statistical Service, 1994). Using this criteria, for the year 1997 there was a prenatal coverage of 85.2%, supervised delivery of 40.6% and postnatal coverage of 34.3% for the country (MCH/FP Report, MOH 1997). A question being asked is why this gap between antenatal, supervised delivery and postnatal coverage? This problem of poor continuity of care is an issue of great concern, because WHO states that 15% of all pregnant women would definitely require skilled obstetric care without which some will die (WHO, 1996). Some of the reasons for under utilisation of supervised delivery services in Ghana are, inappropriate service provider attitudes, long waiting time, high cost of service and distance from home to service centre customary practices and beliefs (Kumekpor and Richardson, 1992). In the case of the Yendi district, there are trained traditional birth attendants (TBAs) in the communities who share the same beliefs as their clients, yet pregnant women attend prenatal service and still deliver at home unattended by a trained person. It is reported that there is a family TBA in each compound, and so trained TBAs are not utilised.

Although some of the factors involved in unsupervised delivery may be known, regarding the Yendi district, the local factors will have to be identified and prioritised. This will ensure that effective intervention measures are taken to reduce maternal mortality in the district through improvement in utilisation of delivery services. For

maternity care service to achieve its objective of reducing maternal mortality, the continuum of care of the pregnant woman will have to be maintained with good utilisation of prenatal, delivery, postpartum and family planning services.

1. 1 STUDY AREA

The Yendi district is one of the thirteen districts in the Northern Region .It has a total landmass of 5,350km ^{2} Its location is as shown in Appendix 1.

Its relief is generally low lying. The district is drained by a few streams, which are tributaries of the Volta river. The vegetation is of the Guinea savannah type, especially where farming activities are minimal. However, the main occupation is farming.

Rainfall is experienced from April to October. The average rainfall is 1200mm. There is a dry spell or harmattan from November to March.

The district has an estimated population of 152,309 (1999), projected from the 1984 census with a population growth rate of 4%. The district is divided into six sub-districts. Women of childbearing age are estimated to be 30,462. Expected deliveries for the year 1999 is 6092.

The district has a government hospital in Yendi, five health centres in the sub -districts and a Maternal and Child Health/Family Planning clinic (MCH/FP) in Yendi. At these health facilities, curative, promotive and preventive maternal and child health services are offered, both at the static facilities and by 86 outreach points in addition to curative services [a] Maternal care services: prenatal, delivery postnatal and family planning services are run in the district by a staff consisting of a district public

[a] MOH District Annual Report, Yendi 1998 (unpublished)

health nurse, 21 midwives (14 in the district hospital, and 7 in the sub-districts). There are 24 community health nurses and 95 trained traditional birth attendants.

All the roads in the district are untarred, and some are not motorable during the rainy season.

1. 2 PROBLEM STATEMENT

For maternal care services to achieve its objective of reducing maternal mortality and ensuring improved fetal outcome, the components of maternal care services should be viewed and utilised as a continuum of care for pregnant women during the period of pregnancy delivery and after delivery. (Abouzahr, 1998)

In the Yendi district, utilisation of maternal care services by women is generally low and this has resulted in the relatively high maternal mortality rate of the district (804/100,000 compared to the country's maternal mortality rate of 240/100,000, The MCH/FP MOH Annual Report, 1997; MCH/FP District Annual Report Yendi, 1998).

TABLE I. MATERNAL SERVICE INDICATORS

Maternal Service	National(1997)[1]	Yendi(1998)[2]
Maternal mortality (per 100,000) (Institutional)	240	804
Prenatal attendance (% of expected deliveries)	85.2	71.8
Supervised deliveries (% of expected deliveries)	40.6	28.5

[1] MCH/FPMOH Annual Report, 1997.
[2] MCH /FP District Annual Report Yendi, 1998(Unpublished).

From Table I, Yendi can be regarded as a representative district of the Northern Region, which can be used to find out the reasons for the preference of prenatal to supervised delivery services in the country, and the use of untrained birth attendants in the home, despite the fact that home delivery with untrained attendants often results in maternal death.

For the year 1997, the number of maternal deaths reported in the communities was 19. Health facility based maternal mortality was 12 of which 8 was as a result of complications associated with home delivery by untrained attendants.[b] In the Yendi district for the year 1998 of the 4205 pregnant women who attended prenatal services only 1670 (43.28%) delivered with trained attendants. [C] The training and use of TBAs has been one of the methods adopted in the past to increase supervised delivery in the district but this has not yielded the expected results.

1.3 RATIONALE FOR THE STUDY

There is the need to find out why women who have attended prenatal services where the importance of having assisted childbirth is stressed still choose to deliver their babies at home with untrained attendants. This information will provide the basis for the planning of a strategy to ensure that women in the Yendi district use both prenatal and supervised childbirth facilities effectively to minimise both maternal and perinatal mortality.

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[b] Yendi District Community Surveillance Data, 1998 (unpublished)

[C] MCH/FP Yendi District Annual Report, 1998 (unpublished)

1.4 OBJECTIVE OF STUDY

1:4:1 General Objective

The objective is to study the difference in the pattern and determinants between prenatal service utilisation and delivery services and to ascertain reasons why most women who utilise prenatal services choose to deliver at home with untrained attendants.

1:4:2 Specific Objectives

1. To find out if there is really a significant difference between the patronage of prenatal service and supervised delivery service in the district.
2. To find out if there are any differences between women who utilise prenatal services but deliver at home with untrained attendants and those who utilise both services with respect to specific socio-economic factors.
3. To determine whether where a woman attends prenatal service has an effect on where and with whom she chooses to deliver with.
4. To determine whether geographical accessibility has an influence on supervised delivery.
5. To find out whether financial accessibility has an influence on supervised deliveries.
6. To determine whether client's satisfaction or dissatisfaction with prenatal service has an influence on where the client decides to deliver
7. To find out who decides where a woman should deliver.
8. To ascertain the prevalence of untrained family TBAs delivery [d] in the Yendi district.
9 To find out whether specific, cultural practices and beliefs influence the decision as

[d] Deliveries conducted by untrained mother-in-laws

to where a woman eventually delivers.

10 To determine whether number of prenatal service attendance has an effect on where a woman eventually delivers

11. To find whether there are any explicit customary observances that prevent having a baby outside the home.

CHAPTER 2

LITERATURE REVIEW

2.0 OVERVIEW

In Ghana, maternal mortality is high. The main causes of maternal deaths include sepsis, haemorrhage, hypertensive disorders of pregnancy and obstructed labour and unsafe abortions (MCH /FP MOH, Report 1996). In Yendi district for the year 1998 eight out of the ten maternal deaths recorded in the hospital were due to ruptured uterus (Ghana, MOH, Northern Region – Review 1998). A large proportion of the deaths is due to the fact that deliveries are attended by untrained attendants, thus when obstetric emergencies arise it is not recognised and promptly dealt with. Unfortunately quite a number of these women who died during delivery had received prenatal care at least once during their pregnancies (Ghana Statistical Service, 1994).

2.1 MATERNAL HEALTH SERVICE UTILISATION

The reasons why women in the Yendi district utilise prenatal service but decide to deliver at home have never been investigated. However health personnel in the district collaborate the conclusions of some research done in Ghana and other developing countries. Most of the literature available and reviewed either looked at reasons for under utilisation of maternal care services in general or reasons for under utilisation of a component of maternal care services. Kwast et. al. (1984), and Auerbach (1982), have all considered reasons for under utilisation of maternal services in general, while Kumekpor and Richardson (op. cit.); Thaddeus and Maine (1990); Moller et. al. (1991.); Thonneu et. al. (1992) and numerous other authors have looked at reasons for under utilisation of one component of maternal service. Kumekpor and Richardson (op.

cit.) in their study, on the reasons for low utilisation of delivery services among other things, used purposive sampling technique to select respondents. The results he obtained cannot therefore be generalised to explain the issue of low utilisation of delivery services in Ghana. The results he obtained are also further weakened by his use of women attending maternal care services in hospitals. This introduces an element of respondent bias, since women interviewed in a hospital setting will be less reluctant to criticise the service. Nwakoby (1994), is among the few who have examined the factors associated with women who registered for prenatal care but chose to deliver at home. Factors that he found to be most significantly associated with the choice between home and institutional deliveries were maternal education, occupation, religion and occupation of husband. Maternal age, parity and marital status were however not significant factors (Nwakoby, op cit.). Since Nwakoby used the place of delivery as the dependent variable, his study does not answer the question why women prefer prenatal service to supervised delivery service, irrespective of where the delivery took place, which this study aims to do.

2:1:1 Prenatal Attendance

The World Health Organisation (WHO) recommends that pregnant women should have at least four antenatal visits, one per trimester. WHO also recommends that a skilled attendant be present at every birth to ensure continuing good quality care that is hygienic, safe and sympathetic (WHO, Safe motherhood, 1998).The health facilities are supposed to make optimum use of contact with women attending the prenatal service and win their confidence and trust that will make them seek supervised delivery when they go

into labour (Tew, 1986.). Prenatal care might theoretically reduce maternal morbidity and mortality directly through detection and treatment of pregnancy related illness, or indirectly through detection of women at increased risk of complication of delivery and ensuring that they are attended by trained attendants during childbirth (Peaceman, 1993). However there is often evidence that even in places where the quality of prenatal services is high, risk factors are not picked up (Loudon, 1986; Hall et al., 1980). Thus the situation that exists in Yendi, where women attend prenatal service but have unsupervised childbirth cannot result in a reduction in maternal and perinatal mortality.

2:1:2 Supervised Deliveries

Skilled birth attendants as defined by WHO are trained midwives, nurses and doctors who have completed a set course of study and are registered or licensed to practice (WHO / UNFPA/UNICEF Statement, 1999). If the WHO definition of a skilled attendant is used, then in Ghana less than half of the deliveries that are now classified as supervised can really qualify as such. This is because in Ghana deliveries by trained TBAs are also classified as supervised (MOH/MCH Annual Report, 1996; Ghana Statistical Service, op.cit.). In terms of maternal mortality, however, some authors are of the opinion that the rationale for the training and use of TBA is weak; according to this school of thought, there are no clear pathways between TBA training and either reductions in the number of complications or improvements in the treatment of complications. Although clean delivery practices prevent some cases of infection, many infections are due to other causes, such as prolonged labour and pre-existing reproductive tract infections. Furthermore, the vast majority of complications that threatens women's lives cannot be treated by trained TBAs. Finally, training TBAs is often proposed

where the health system is not functioning well, so even teaching them to refer women for treatment of complications is not a realistic option (McCarthy, 1997). Using the WHO criterion for supervised delivery for the Yendi district gives a supervised delivery rate of 14.7% compared to 28.5% using the Ministry of health criteria. [c] For this study, the Ministry of Health's definition of supervised delivery, which includes deliveries assisted by trained TBAs will be used.

2:1:3 Unsupervised Delivery

Unsupervised delivery is associated with risks to babies and mothers. This is because complications of delivery can occur very suddenly during delivery and it takes a trained person to recognise this and act quickly to save the life of the woman in labour (Hall et al., op.cit.).

In a study in Saudi Arabia, 80-90 % of deliveries was found to have occurred unsupervised at home, and the consequent maternal mortality was over 700/100,000 live births (Rasheed and Khan., 1990). He further describes home delivery as dangerous.

Apart from the high maternal mortality associated with unsupervised home delivery, there is an excess neonatal mortality in births assisted by untrained attendants (Schramm et al., op.cit.).

In the developed world especially United States of America and the Netherlands, there is demand for home delivery (Kerssen, 1994), because of what is perceived to be medicalisation and interference by health personnel during delivery (Pearse, 1987). In these developed countries however, the relative abundance of trained personnel and the presence of an efficient back up system to handle any obstetric complication, that may arise, ensure that the best care is available for women who choose to deliver at home.

In the developing countries however, there are few trained staff, most of them are in large urban towns To satisfy the desire of women to deliver their babies at home, and still provide delivery service by trained attendants, who will be able to recognise obstetric complications and refer patients promptly to the next level of care should this occur, traditional birth attendants in various communities have been trained to offer assisted delivery for those who prefer home delivery (WHO/UNFPA/UNICEF, 1992). The reason for this, it is argued is that, to a large extent, what is important is not where a woman delivers, but rather who assists the delivery, whether they were formally trained or not. It is upon this that the outcome of the delivery depends (Tew, op.cit; Ernest, 1988). This assertion is however disputed by some researchers who call home delivery even in the developed countries' setting as irresponsible because of unexpected incidents that can occur (Berg and Suss, 1986). Berg and Suss reviewed 103 current publications on perinatal mortality and home delivery and compared 85,000 home deliveries with a statistically comparable group of hospital deliveries. The risk of children dying during or after birth was higher for home births. He also showed that the Netherlands which has about 30% home deliveries, has a perinatal mortality rate of 0.96%. This is the highest, compared to other high –developed countries (Germany: 0.6%).

In Ghana despite the use of trained traditional birth attendants in the communities, about 40% of pregnant women have still been found to have home deliveries, assisted by untrained attendants (Ghana Statistical Service. op.cit.).

2:1:4 Reasons for preference for home delivery

Moller et al. (1991), give the underlisted as some of the reasons for the preference

for home delivery in the developing countries,

- Accessibility factors
- Acceptability factors
- Factors related to quality of care

2:1:5 Access to service

Access to maternity service is influenced by a lot of factors. These include:

1. Existence of facilities
2. Availability of information for the use of the facilities
3. Accessibility of facilities
4. Moderate cost of health care
5. Adequacy of supplies and equipment
6. Acceptability of services provided

(Thaddeus and Maine, op.cit.).

In connection with accessibility of facilities, distance from the health facilities, the nature of the terrain, and availability of transport are usually considered as the cause of home delivery with untrained attendants (Howson et al., 1996). Physical distance from facilities has also been shown to be associated with unsupervised home delivery and high maternal mortality (Walker et al., 1985). In a study done in a small Nigerian community, however, the researchers concluded that provision of relatively accessible service does not necessarily guarantee their use (Brieger and Luchok, 1994).

Another reason given for unassisted home delivery, is the cost of health services, and indeed the underutilisation of all formal health services (Waddington and Enyimayew, 1989; Auerbach, op.cit.; Ekwempu et al., 1990). Research to date in the developing world, however, seems to suggest that the cost of the health service, per se is

not the overriding consideration in the decision to seek medical care. Rather, it is the total costs of obtaining care as well as perceived quality of care offered at the health facility. (Moller et al op.cit.; Kloos et al., 1987).

The issue of cost is also considered in relation to the supposed seriousness of an illness or condition. Where a condition or illness is considered from a community's perspective as serious, no expense is spared in seeking care (Thaddeus and Maine, op. cit.). So, in a community where childbirth is perceived to be a natural event, high delivery service cost will definitely cause its under utilisation (Ernest, op.cit.; Ityual, 1984).

2:1:6 Acceptability of service

Acceptability of the service that is being offered to the women is also thought to affect its utilisation. The health facilities are supposed to make optimum use of contact with women attending the prenatal service. The prenatal service offers a chance for the service providers to reach a large section of pregnant women and predispose them towards supervised childbirth (Kirke, 1980). Some of the reasons given for this not happening in a lot of places is lack of mutual confidence between service providers and patients, an attitude which begins at the prenatal period (Jaffre and Prual, 1994).

Although sources of complaints between providers and patients appear to be numerous, they are, however, centered around two themes: delivery techniques and cultural requirements (Jaffre and Prual, op. cit.). The women claim that they are treated with disrespect when they attend prenatal clinic. Therefore, to avoid humiliation and undue anxiety during delivery they choose a more congenial surroundings which is their home. Moreover at home they are close to their family who give them the needed emotional support (Auerbach, op. cit.;Moller op.cit.). Quality of care from the patient's

perspective was poor, and this affected service utilization. Where members of a community notice that those who go to a hospital or health facility die, they lose confidence in the facility, and the services offered by that facility (Moller op.cit.). Indeed the Maternal and Child Health unit of the Ministry of Health in its annual report of 1996 attributed the difference between the utilisation of prenatal services and delivery services to inadequate quality of care at the health institutions (MCH/ FP .MOH. Annual Report, 1996).

2:1:7 Educational Status of pregnant women and decision on where to deliver

More educated women might be better informed about the symptoms of complications and could therefore be more likely to make a timely decision to seek care when a complication arises (McCarthy and Maine, 1992.). Educated women will also be less likely to be influenced to deliver at home by their mother-in-laws. The social distance between an educated patient and health personnel are usually insignificant. This coupled with her ability to pay for services makes it more likely for her to be well treated.

2:1:8 Demographic, Socioeconomic, Cultural and Religious Factors

A complex set of demographic, socio-cultural and religious factors are also thought to influence the place where a woman chooses to deliver. Voorhoeve et al. (1984), found that women having their first child birth, short women (< 150cm), those with a history of serious complications in previous delivery and a history of previous hospital delivery are likely to be those who delivered in health facilities and were assisted by trained personnel. A study in Saudi Arabia found that those who deliver at home with untrained attendants are usually older women with low educational

background (Rasheed and Khan, op. cit.). It is believed that the reasons why close to 70% of babies in developing countries are delivered by traditional birth attendants are cultural and convenience (WHO. 1995).

2:1:9 Decision on where to deliver

Decisions on where to seek care for pregnant women are often, in the traditional context, made by either the husband, mother-in-law or close relative whose opinions are highly valued. Even when pregnant women are convinced during the prenatal service to seek supervised delivery service, close relations make the final decision during the period the woman is pregnant (Thaddeus and Maine, op. cit.).

CHAPTER 3

METHODOLOGY

3.0 STUDY TYPE

This is a cross- sectional study, which provided information on the reasons for the difference between prenatal service utilisation and supervised delivery utilisation. This study sought to provide information that will help to improve supervised delivery service utilisation. Cross-sectional study was used because it provided information on the utilisation of prenatal service and delivery service in the communities, as well as identifying the significant factors that determine the utilisation of supervised delivery service. To reduce recall bias, the period of study was restricted to deliveries that occurred last year.

3.1 DATA COLLECTION TECHNIQUE /TOOLS

The main technique and tools that were employed in this study are:

1 The use of available information from the annual district health reports

2. Interview of sample of women between the age 15-49 who delivered in 1998 using a structured questionnaire.

3.Interview of husbands of selected women who were met at home using a structured questionnaire

3.2 SAMPLING

3:2:1 Study population

The study population was all women in the Yendi district between the ages 15-49yrs who delivered either live or stillbirth in 1998 .The expected delivery for the year 1998 is approximately 5859. (4% of the population for the year 1998 which was 146,450). In addition all husbands whose wives delivered last year will also constitute a study population.

3:2:2 Sample size

Since the study seeks to examine the difference between two variables, which are women who attended prenatal care and delivered with trained attendants and women who attended prenatal care but chose to deliver at home with untrained attendants, the formula for obtaining significant results using two proportions to get the minimum sample size needed for the study was used (Kirkwood, 1996).**(Appendix 2)**

A sample size of 400 women was used taking into consideration non- response and incomplete questionnaires.

A Husband who was met whilst interviewing a selected woman in a house was also interviewed. Two hundred and seventy husbands of respondents were interviewed.

3:2:3 Sampling procedure

A multistage sampling technique was used (Abramson, 1990). First the district was stratified according to the existing sub-districts. Then from the six sub-districts, with a total of 315 communities, 50 communities were selected proportionately at random by balloting. To obtain clusters of almost equal sizes, Yendi Township which

is very large was zoned into 14 clusters or communities for the balloting.

In each of the 50 selected communities 8 women between the ages of 15-49yrs were selected by systematic sampling of the houses in the community.

Where there was more than one woman meeting the set criterion, one of them was chosen by balloting. Where there is no woman meeting the study criterion in the selected house, the next house in the systematic sequence was entered. The husbands of selected women were also interviewed if they were met at home.

3.3 TRAINING OF RESEARCH ASSISTANTS AND PRETESTING

Four research assistants were used to assist in data collection. They were trained for 2 days in data collection and interview techniques. The questionnaire was translated to Dagbani and an agreement on how each question was to be asked, was reached, so as to reduce inter-observer bias. A day was used to pretest the questionnaire in Kagu a community in the Yendi sub-district which was not selected for the study. The questionnaire was then finalised, after the necessary corrections have been made.

3.4 SUPERVISION OF FIELD WORK

The principal investigator did supervision of fieldwork. He went round to check the quality of work. After the day's work the principal investigator collected all the filled questionnaires and went through them before the beginning of the next day's work.

All errors found were discussed with the research assistants before the start of the next days work. If there is the need to revisit the communities to correct an error or omission in the administered questionnaire, it was done by the research assistants.

To check for consistency and validity of the data collected by research assistants

some of the questionnaires were selected at random and certain parts of the questionnaire were re-administered by the principal investigator. The results were compared to what was obtained by the research assistants. Any differences found were discussed before the next day's work.

3.5 DATA HANDLING

Individual questionnaires were given a code according to the sub-districts, communities and research assistants. The first two letters of the sub-districts begun the code followed by the first three letters of the community. Each respondent was also given a code with three digits, which will follow the number of questionnaires, administered by research assistant.

3.6 PLAN FOR DATA PROCESSING AND ANALYSIS

3:6:1 Sorting

Questionnaires were grouped according to communities and sub-districts. This was done straight from the field. This facilitated further visits to gather information that might have been omitted.

3:6:2 Data Entry

The principal investigator examined all completed questionnaires to ensure that every question that had been answered on a questionnaire was valid and consistent with other responses given on the questionnaire, and without any ambiguity.

The principal investigator did data entry.

3:6:3 Analysis

Analysis of data was done using Epi- Info 6 statistical software. Simple

frequency tables as well as cross-tabulation tables were drawn.

Using the null hypothesis that there is no difference in the demographic characteristics of women who attended prenatal care but deliver at home unsupervised and those who utilised both services, and that reasons why women deliver unassisted at home after attending prenatal service is no different from the reasons for those who utilise both services. The Chi-square test was done at the 5% level of significance to test these null hypothesis for the various variables under consideration.

3.7 ETHICAL CONSIDERATION

Permission was sought from the chiefs of all the selected communities, after explaining the purpose of the study to them. Communities who decided not to take part were replaced by balloting. Considering the high level of illiteracy, verbal consent was obtained from all those who were interviewed. To ensure confidentiality and anonymity codes were given to respondents on the administered questionnaires, this was used only for the purpose of follow ups to clarify ambiguities in collected data and ensure completeness of questionnaires.

3.8 LIMITATION OF THE STUDY

1. To reduce interviewer bias, most of the questions used were closed ended. This led to loss of some useful information which open-ended questions through probing would have elicited.
2. Translating the questionnaire into Dagbani, which the principal interviewer does not understand, made the definitions of some of the factors being studied not very precise. This made the interpretation of some results difficult.
3. This cross-sectional study is being considered as an analytic study to test hypothesis, with the assumption that the current independent variables being assessed have not altered since last year.

CHAPTER 4

RESULTS

4 .0 SURVEY DATA PRESENTATION

Four hundred women between 15- 49 years who delivered last year were interviewed on their background characteristic, their utilisation of maternal services and the factors that affect this utilisation. Two hundred and seventy three (273) men who are husbands who were met in the households where some of the women were interviewed were also interviewed.

TABLE 2 COVERAGE OF SUPERVISED DELIVERY AND PRENATAL SERVICE*

SOURCE OF DATA	PRENATAL	SUPERVISED DELIVERY
ROUTINE (INSTITUTIONAL)	**71.8% (4205)**	**28.5% (1670)**
SURVEY	**93.5% (374)**	**41.2% (165)**

* Chi-square = 27.47 p=0.000

4.1 BACKGROUND CHARACTERISTICS OF RESPONDENTS

4:1:1 Distribution of respondents and trained attendants by sub-district of residence

Distribution of the respondents is as shown in **Table 3.** One hundred and eighty four (46%) of the respondents came from the Yendi sub-district.

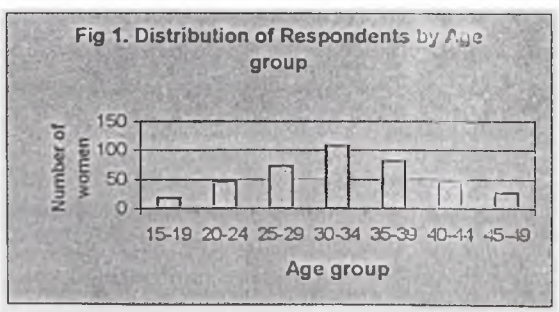
TABLE 3. DISTRIBUTION OF RESPONDENTS AND TRAINED ATTENDANTS* BY SUBDISTRICT OF RESIDENCE

Subdistrict	Total No. of Communities	No. of Trained Attendants/ subdistrict	No. of Selected Communities	Number of Respondents	PERCENTAGE %
ADIBO	**38**	**14**	**6**	**48**	**12.0**
BUNBON	**38**	**1**	**6**	**48**	**12.0**
NGANI	**33**	**16**	**5**	**40**	**10.0**
JIMLE	**32**	**10**	**5**	**40**	**10.0**
SANG	**32**	**20**	**5**	**40**	**10.0**
YENDI	**142**	**34**	**23**	**184**	**46.0**
TOTAL	**315**	**95**	**50**	**400**	**100.0**

* There is one midwife in each subdistrict with the exception of Sang and Adibo which has two midwives.

4:1:2 Age Distribution

The ages of respondents ranged from 16 to 49 years with a mean age of 31 years. From **Fig. 1**, 107 (26.8%) were in the 30-34 age group, whilst 81(20.3%) were in the 35-39 age group.



Corresponding age group distribution of husbands of respondents is as shown in **Table 4.** Ninety four (34.4%) were in the 40-49 age group and twenty-six (9.5%) were above 60 years.

TABLE 4. AGE GROUP DISTRIBUTION OF HUSBANDS OF RESPONDENTS

AGE GROUP	FREQUENCY	PERCENTAGE %
40-49	**94**	**34.4**
30-39	**71**	**26.0**
50-59	**60**	**22.0**
20-29	**22**	**8.1**
60-69	**17**	**6.2**
70-79	**9**	**3.3**
TOTAL	**273**	**100.0**

4: 1:3 Ethnic Distribution of Respondents

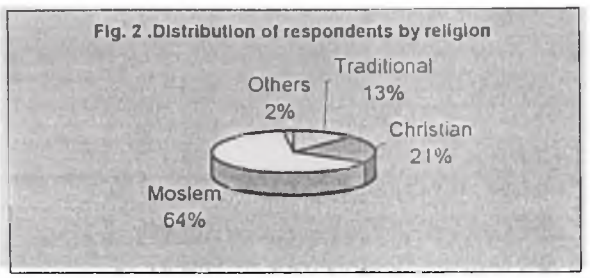
About 64% of respondents were Dagombas, **(Table 5.)** Whilst 33% were Kokombas.

TABLE 5. DISTRIBUTION OF RESPONDENTS BY ETHNICITY

ETHNICITY	FREQUENCY	PERCENTAGE %
DAGOMBA	254	63.5
KOKOMBA	131	32.8
NANUMBA	9	2.3
OTHERS	6	1.5
TOTAL	400	100.1

4:1:4 Distribution of Respondents by Religion

Of the four hundred women interviewed, 259 (65%) were Moslems, whilst 83 (21%) were Christians. **(Fig 2.)**



4:1:5 Marital status of respondents

Three hundred and eighty eight (97%) of respondents were married. None of the respondents were divorced, whilst 8, mostly young women, were single. **(Table 6.)**

TABLE 6. MARITAL STATUS OF RESPONDENTS

MARITAL STATUS	FREQUENCY	PERCENTAGE
MARRIED	**388**	**97.0**
SINGLE	**8**	**2.0**
SEPERATED	**3**	**0.8**
WIDOWED	**1**	**0.3**
DIVORCED	**0**	**0.0**
TOTAL	**400**	**100.1**

4:1:6 Number of wives of husband of respondents

Of the 388 respondents who were married, 194 (50%) were in monogamous marriages. A small proportion (1%) were in unions where the husband had five or more wives. (**Table 7.)**

TABLE 7. NUMBER OF WIVES THAT HUSBAND OF RESPONDENT HAS

NUMBER OF WIVES	FREQUENCY	PERCENTAGE %
1	192	49.5
2	130	33.5
3	47	12.1
4	15	3.9
≥ 5	4	1.0
TOTAL	388	100.0

4:1:7 Position of respondents in polygamous marriages

Of the 198 in polygamous relationships 102 (51.5%) were first wives of their husbands.**(Table 8.)**

TABLE 8. MARITAL POSITION OF RESPONDENTS IN POLYGAMOUS MARRIAGE

MARITAL POSITION	FREQUENCY	PERCENTAGE %
1	102	51.5
2	62	31.3
3	20	10.1
4	13	6.6
≥ 5	1	0.5
TOTAL	198	100.0

4:1:8 Parity of respondents

Parity ranged from 1 to 11. Two hundred (50%) of the respondents had parity between 3 and 5. **(Tables 9.)** The mean parity was 3.8.

TABLE 9. PARITY OF THE RESPONDENTS

PARITY	FREQUENCY	PERCENTAGE %
0 2	134	33.5
3 - 5	200	50.0
6 - 8	52	13.0
9 - 11	14	3.5
TOTAL	400	100.0

4:1:9 Educational status of respondents

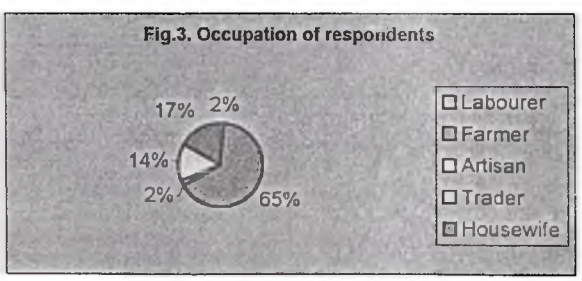
Three hundred and seventy respondents (92.5%) had no formal education. Only twenty-five women (6.25%) had primary level education. **(Table 10.)** The only woman with post-secondary education is a teacher in Sang sub-district.

TABLE 10. DISTRIBUTION OF RESPONDENTS BY EDUCATIONAL STATUS

EDUCATIONAL STATUS	FREQUENCY	PERCENTAGE %
NONE	**370**	**92.5**
PRIMARY/JSS/MIDDLE	**25**	**6.3**
SECONDARY/SSS	**4**	**1.0**
POST SECONDARY	**1**	**0.3**
TOTAL	**400**	**100.1**

4:1:10 Occupational status of respondents

The major occupation of respondents is farming. Two hundred and sixty one (65.3%) of the respondents were farmers. Sixty-seven (16.8%) were housewives, who were mostly the wives of affluent men, while 57 (14.3%) were traders. **Fig. 3.**



4:1:11 Educational status of husbands of respondent

Of the 400 respondents, 361 (90.3%) of respondents said their husbands had no formal education, whilst 8 (2%) had tertiary education. **(Table 11.)**

TABLE 11. EDUCATIONAL STATUS OF HUSBANDS OF RESPONDENTS

EDUCATIONAL STATUS	FREQUENCY	PERCENTAGE %
NONE	**361**	**90.3**
PRIMARY/JSS/MIDDLE	**17**	**4.3**
SECONDARY/SSS	**14**	**3.5**
TERTIARY	**8**	**2.0**
TOTAL	**400**	**100.0**

4:1:12 Occupation of husbands of the respondents

Three hundred and seventy three (93.3%) of husbands of respondents were farmers. **(Table 12.)**

TABLE 12. OCCUPATION OF HUSBANDS OF RESPONDENTS

OCCUPATION	FREQUENCY	PERCENTAGE %
FARMER	**373**	**93.3**
TEACHER	**9**	**2.3**
TRADER	**8**	**2.0**
LABOURER	**5**	**1.3**
CIVIL SERVANT	**2**	**0.5**
ARTISAN	**2**	**0.5**
OTHER	**1**	**0.3**
TOTAL	**400**	**100.2**

4:1:13 Socio-economic status [e]

Of the 400 respondents using the composite variable derived for socio-economic status, three hundred and sixty (90%) were found to be of low socio-economic status, 9.5% middle and 0.5% high socio-economic status. **(Table 13.)**

TABLE 13. SOCIO-ECONOMIC STATUS OF RESPONDENTS

SOCIO-ECONOMIC STATUS	FREQUENCY	PERCENTAGE %
LOW	**360**	**90**
MIDDLE	**38**	**9.5**
UPPER	**2**	**0.5**
TOTAL	**400**	**100.0**

4.2 PRENATAL SERVICE UTILISATION

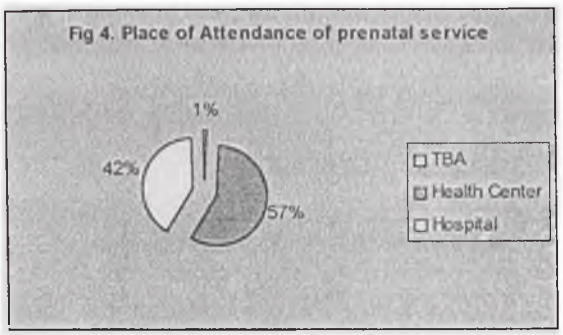
4:2:1 Prenatal Service Coverage

Of the 400 respondents, 374 said they attended prenatal service during their last pregnancy. This gives prenatal service coverage of about 94%.

4:2:2 Place of attendance of prenatal service

Almost all 374 (99%) respondents who attended prenatal service were cared for at either a health centre or hospital. Only 1% utilise the service of TBAs. **(Fig 4.)**

[e] Socio-economic status, a composite variable derived by adding Educational status of respondents Educational status of husband and Occupation of Husband which has been coded numerically.



4:2:3 Number of times that respondent attended prenatal service

Of the 374 respondents who attended prenatal service, 125(33.4%) attended prenatal service three times during their last pregnancy, 104 (27.8%) attended four times, whist 64 (17.1%) attended five or more times. **(Table 14.)**

TABLE 14. NUMBER OF TIMES RESPONDENTS ATTENDED PRENATAL SERVICE

NUMBER OF TIMES	FREQUENCY	PERCENTAGE %
1	**19**	**5.1**
2	**62**	**16.6**
3	**125**	**33.4**
4	**104**	**27.8**
≥ 5	**64**	**17.1**
TOTAL	**374**	**100.0**

4:2:4 Satisfaction [f] with prenatal service

Three hundred and thirty two (88.8%) of the respondents who attended prenatal service expressed satisfaction with service rendered. Less than 1% were very dissatisfied with the service rendered. **(Table 15.)**

[f] Respondents perceived positive respondent-health personnel interaction.

TABLE 15. SATISFACTION WITH PRENATAL SERVICE

SATISFACTION WITH SERVICE	FREQUENCY	PERCENTAGE %
SATISFIED ON THE WHOLE	**195**	**52.1**
VERY SATISFIED	**137**	**36.6**
DISSATISFIED	**39**	**10.4**
VERY DISSATISFIED	**3**	**0.8**
TOTAL	**374**	**99.9**

Of the 42 respondents who were dissatisfied with the service rendered at the prenatal service, 34 (81%) attended prenatal service at the hospital. Those who were satisfied with services rendered at prenatal service had a higher attendance than those who were dissatisfied (Chi square 24.9, p=0 .000). **(Table 16.)**

TABLE 16. SATISFACTION WITH PRENATAL SERVICE AND NUMBER OF ATTENDANCE AT PRENATAL SERVICE*

N0. OF ANC ATTENDANCE	1	2-3	4	⊇ 5
SATISFIED	**14**	**161**	**94**	**63**
DISSATISFIED	**5**	**26**	**10**	**1**
TOTAL	**19**	**187**	**104**	**64**

***P= 0.000**

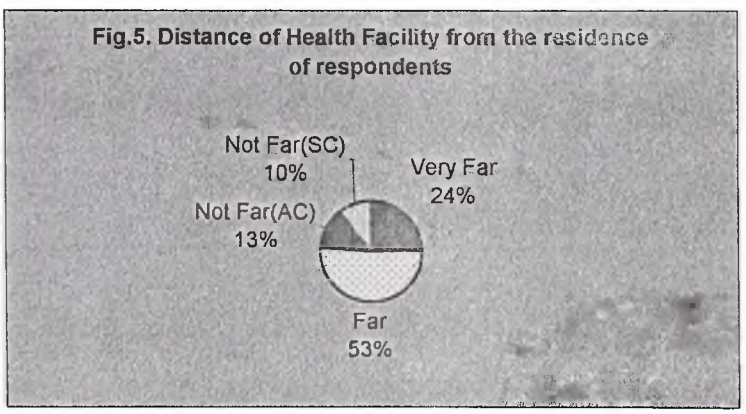
4.3 ACCESSIBILITY

4:3:1_Availability of delivery service at place of prenatal service attendance

Of the 374 respondents who attended prenatal service 368(98.4%) said delivery service was available where they attended prenatal service, while 6 (1.6%) said delivery service was not available where they attended prenatal service. One hundred and ninety three (51%) of respondents had access to trained TBAs within their communities, whilst 39 (10%) had access to midwives within their communities.

4:3:2 Distance of delivery service from the residence of respondent

Two hundred and eighty five (76.2%) of the respondents said the distance from their homes to health facility where delivery services are offered was far. Only thirty nine (10.4%) had delivery services offered by midwives within their communities. **(Fig 5.)**

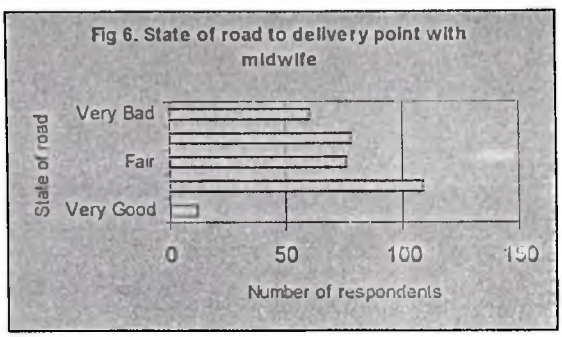


SC= Same community AC= Adjacent community

4:3:3 State of the road to the delivery service

Three hundred and thirty five out of the 374 who attended prenatal service had delivery service outside their communities. One hundred and thirty eight (41.2%) of

these 335 respondents said the road from their homes to the health facilities was bad. 32.5% however said the road from their homes to the health facilities was good. **(Fig.6.)**



4:3:4 Ease of getting a vehicle

Of the 335 respondents who attended antenatal and had delivery service outside their communities 301(89.9%) of them said it was difficult to get a vehicle from their homes to the health facility where delivery services are offered. **(Table 17.)**

TABLE 17. EASE OF GETTING A VEHICLE TO DELIVERY POINT WITH MIDWIFE

EASE OF GETTING A VEHICLE	FREQUENCY	PERCENTAGE %
VERY EASY	**13**	**3.9**
EASY	**21**	**6.3**
DIFFICULT	**184**	**54.9**
VERY DIFFICULT	**117**	**34.9**
TOTAL	**335**	**100.0**

4:3:5 Geographical Accessibility [g]

Using the composite variable derived for geographical accessibility which take into consideration, distance from health facility, state of the road and the ease of getting a vehicle 313 (93.4%) of the respondents said geographical accessibility was a problem. **(Table 18.)**

TABLE 18. DISTRIBUTION BY GEOGRAPHICAL ACCESSIBILITY

ACCESSIBILITY	FREQUENCY	PERCENTAGE %
FAIRLY ACCESSIBLE	**231**	**70.0**
NOT ACCESSIBLE	**82**	**24.4**
ACCESSIBLE	**22**	**6.6**
TOTAL	**335**	**100.0**

4.4 DELIVERY SERVICE

4:4:1 Distribution of the type of delivery service that respondents had

Two hundred and eleven (56.4%) of the 374 respondents who attended antenatal service had unsupervised delivery [h], whilst 163 (43.6%) had supervised delivery [i] Of the respondents who had unsupervised delivery family TBAs assisted the majority of them. (39.3%). **(Table 19.)**

[g]Geographical Accessibility is derived by adding the distance to the health facility offering delivery service the state of the road and the ease of getting a vehicle to the delivery service, according to the responses given by the respondents which was coded numerically.

[h] Delivery assisted by person not formally trained to conduct deliveries.

[i] Delivery assisted by person formally trained to conduct deliveries.

TABLE 19. DISTRIBUTION OF RESPONDENTS WHO ATTENDED PRENATAL SERVICE BY TYPE OF SERVICE DELIVERY UTILISED.

PLACE AND PERSON ASSISTING DELIVERY	FREQUENCY	RESPONDENTS WHO ATTENDED PRENATAL %
HOME WITH TRAINED TBA	**115**	**30.8**
HOME WITH MOTHER-IN-LAW (UNTRAINED)[1]	**83**	**22.2**
HOME ALONE	**67**	**17.9**
HOME WITH UNTRAINED TBA/OTHER RELATIVE	**61**	**16.3**
HEALTH FACILITY WITH MIDWIFE	**45**	**12.O**
HOME WITH MOTHER-IN-LAW (TRAINED)	**3**	**0.8**
TOTAL	**374**	**100.0**

[1] Used to define family untrained TBA

4:4:2 Persons making decision as to where to deliver

Of the 374 of the respondents, who attended prenatal service, husbands made decisions about where to deliver in 210 (56.1%) of them. Mother- in- laws made decisions about where to deliver in only 32 (8.6%) of the respondents. **(Table 20.)**

TABLE 20. PERSON MAKING DECISION ABOUT WHERE TO DELIVER

PERSONS MAKING DECISION	FREQUENCY	RESPONDENTS WHO ATTENDED PRENATAL %
HUSBAND	**210**	**56.1**
SELF	**79**	**21.1**
MOTHER	**53**	**14.2**
MOTHER-IN-LAW	**32**	**8.6**
TOTAL	**374**	**100.0**

4:5 FACTORS INFLUENCING SUPERVISED DELIVERY IN RESPONDENTS WHO ATTENDED PRENATAL SERVICE

4:5:1 Background characteristics of respondents

Background characteristics of the respondents who attended prenatal service was assessed to find out if there was a significant difference in these characteristics between those who delivered at home with untrained attendant and those who and had supervised delivery. The following background characteristics were tested for significance:

- Sub-district of residence
- Ethnicity
- Religion
- Occupation
- Age
- Educational status of respondent and husband
- Husband's occupation
- Socio-economic status

TABLE 21. SIGNIFICANT BACKGROUND CHARACTERISTICS INFLUENCING SUPERVISED DELIVERY IN RESPONDENTS WHO ATTENDED PRENATAL SERVICE.[1]

Background Characteristics	Unsupervised Delivery		Supervised Delivery		TOTAL	Chi-square	P- Value[2]
	Freq.	%	Freq.	%	(%)		
Subdistrict of Residence of Respondents							
ADIBO	18	38.3	29	61.7	47 (100.0)		
BUNBONAYILI	35	79.5	9	20.5	44 (100.0)		
NGANI	21	56.8	16	43.2	37 (100.0)		
JIMLE	22	62.9	13	37.1	35 (100.0)	18.55	0.002
SANG	25	64.1	14	35.9	39 (100.0)		
YENDI	90	52.3	82	47.7	172 (100.0)		

[1] n=374
[2] At 5% significance. If p < then factor is significant.

Background Characteristics	Unsupervised Delivery		Supervised Delivery		TOTAL %	Chi-square	P-Value
	Freq.	%	Freq.	%			
Ethnicity							
DAGOMBA	106	43.3	139	56.7	245 (100.0)		
KOKOMBA	97	84.3	18	15.6	115 (100.0)		
NANUMBA/ OTHERS	8	57.1	6	42.9	14 (100.0)	53.72	0.000
Religion							
TRADITIONAL / OTHER	41	80.4	10	19.6	51 (100.0)		
CHRISTIAN	60	80.0	15	20.0	75 (100.0)	43.56	0.000
MOSLEM	110	44.4	138	55.6	248 (100.0)		
Occupation of Respondents							
LABOURER/ FARMER	170	68.0	80	32.0	250 (100.0)		
ARTISAN	1	12.5	7	87.5	8 (100.0)	50.12	0.000
TRADER	12	21.4	44	78.6	56 (100.0)		
HOUSEWIFE	28	46.7	32	53.3	60 (100.0)		

Background Characteristics	Unsupervised Delivery		Supervised Delivery		TOTAL	Chi-square	P-Value
	Freq.	%	Freq.	%	(%)		
Age group							
15-19	9	50.0	9	50.0	18 (100.0)		
20-24	22	48.9	23	51.1	45 (100.0)		
25-29	44	66.7	22	33.3	66 (100.0)		
30-34	60	59.4	41	40.6	101 (100.0)		
35-39	52	67.5	25	32.5	77 (100.0)	22.86	0.001
40-44	20	42.6	27	57.4	47 (100.0)		
45-49	4	20.0	16	80.0	20 (100.0)		
Educational status of Husband							
NONE	197	58.8	138	41.2	335 (100.0)		
PRIMARY/JSS	8	47.1	9	52.9	17 (100.0)		
SECONDARY/ SSS/TERTIARY	6	27.3	16	72.7	22 (100.0)	8.98	0.01
Educational status of respondents							
NONE	198	57.4	147	42.6	345	3.23	0.198
PRIMARY	12	50	12	50	24		
SSS/TERTIARY	1	20	4	80	5		

Background Characteristics	Unsupervised Delivery		Supervised Delivery		TOTAL (%)	Chi-square	P-Value
	Freq.	%	Freq.	%			
Occupational status of Husband							
LABOURER/FARM-ER	207	58.8	145	41.2	352 (100.0)		
ARTISAN/TRADER /OTHER	2	18.2	9	81.8	11 (100.0)	13.90	0.001[3]
TEACHER/CIVIL SERVANT	2	18.2	9	81.8	11 (100.0)		
Socio-economic status							
LOW	209	57.6	154	42.4	363 (100.0)	5.23	0.022[3]
MIDDLE/HIGH	2	18.2	9	81.8	11 (100.0)		
Parity							
0-3	126	64.9	68	35.1	194 (100.0)	14.05	0.001
4-7	79	49.1	82	50.9	161 (100.0)		
8-11	6	31.6	13	68.4	19 (100.0)		
Marital status of respondents						2.68	0.102[3]
MARRIED	207	57.2	155	42.8	362 (100.0)		
NOT MARRIED	4	33.3	8	66.7	12 (100.0)		

[3] Yates corrected (more than 20% of cells have values less than 5)

From **Table 21**, for respondents attending prenatal service, respondents residing in Adibo sub-district are more likely to have supervised deliveries (61.7%) compared to the other sub-districts, p=0.002.

Women who are Dagombas attending prenatal service are more likely to have supervised delivery (56.7%), compared to women of the Kokomba ethnic group (15.6%), p=0.000.

A woman who is a Moslem attending prenatal service, is more likely to have supervised delivery (55.6%) than a woman who is a Christian (20.0%) or other religion (19.6%), p=0.000. This however is due to the confounding effect of ethnicity on religion, most Dagombas, who have a higher supervised delivery, are Moslems, while Kokombas who are predominantly traditionalists or Christians have a lower supervised delivery. Correcting for ethnicity, religion as factor affecting supervised delivery in women attending prenatal service is not significant (p> .05 for all the three strata).

A woman who is either a labourer or farmer attending prenatal service is less likely to have supervised delivery (32.0%), compared to a trader (78.6%), an Artisan (87.5%) or Housewife (53.3%), p=0.000.

A woman whose husband has formal education is more likely to have supervised delivery (64.1%) than one whose husband is an illiterate (41.2%), p=0.01.

The educational status of the woman attending prenatal service however, appear not to influence her having supervised delivery, p=0.198.

The occupation of the husband of woman attending prenatal service is significant in determining whether she has supervised delivery. Women whose husbands are

labourers or farmers are less likely to have supervised delivery (41.5%) compared to the other professions, p =0.013.

Marital status of respondents attending prenatal service was not significantly associated with supervised delivery. p= 0.102

Parity of respondents was significantly associated with supervised delivery. Women with eight or more children were more likely to have supervised delivery (68.4%) than those with three or less.(35.1%) p=0.001

Socio-economic status of the respondents significantly affected supervised delivery. Respondents of lower socio-economic status were less likely to have supervised delivery (42.4%), compared to respondents of higher socio-economic status.(81.8%) p=0.022

4:5:2 Factors associated with prenatal service attendance that influences supervised delivery

TABLE 22. FACTORS ASSOCIATED WITH PRENATAL SERVICE ATTENDANCE THAT AFFECTS SUPERVISED DELIVERY[1]

Prenatal service factors	Unsupervised Delivery		Supervised Delivery		TOTAL (%)	Chi-square	p-value
	Freq.	%	Freq.	%			
Number of times woman attended prenatal service							
1	**12**	**63.2**	**7**	**36.8**	**19 (100.0)**		
2	**36**	**58.1**	**26**	**41.9**	**62 (100.0)**		
3	**87**	**69.6**	**38**	**30.4**	**125(100.0)**	**18.69**	**0.001**
4	**50**	**48.1**	**54**	**51.9**	**104 (100.0)**		
≥ 5	**26**	**40.6**	**38**	**59.4**	**64 (100.0)**		
Satisfaction with prenatal service							
SATISFIED	**174**	**52.4**	**158**	**47.6**	**332 (100.0)**	**19.3**	**0.000**
DISSATISFIED	**37**	**88.1**	**5**	**11.9**	**42 (100.0)**		

[1]n=374

From **Table 22,** the number of times a woman attends prenatal service and her satisfaction with service offered has a significant influence on her having supervised delivery. Women who had more than four attendance at prenatal service were more likely to have supervised delivery (59.4%), p=0.001. Also women who expressed dissatisfaction with services offered at the prenatal service were less likely to have supervised delivery (11.9%), p=0.000.

Where a woman attended prenatal was significantly associated with satisfaction with service at prenatal. Of the women who were dissatisfied, most attended prenatal service at the hospital (81%). Whilst only 3.7% of those attending prenatal service at the health center or at the TBA were dissatisfied, 21.8% of the respondents who attended prenatal service at the hospital were dissatisfied (p = 0.000).

4:5:3 Factor Associated with Accessibility that affects supervised delivery

Table 23. FACTORS ASSOCIATED WITH ACCESSIBILITY THAT AFFECTS SUPERVISED DELIVERIES.

Accessibility Factors	Unsupervised Delivery		Supervised Delivery		TOTAL	Chi-square	P-Value
	Freq.	%	Freq.	%			
Ease of getting Vehicle[1]							
EASY	**12**	**35.3**	**22**	**64.7**	**34 (100.0)**		
DIFFICULT	**184**	**61.1**	**117**	**38.9**	**301 (100.0)**	**8.40**	**0.004**
Distance of residence from health facility[2]							
FAR	**175**	**61.4**	**110**	**38.6**	**285 (100.0)**		
NOT FAR	**36**	**40.4**	**53**	**59.6**	**89 (100.0)**	**12.11**	**0.000**

[1] n = 335

[2] n = 374

Accessibility Factors	Unsupervised Delivery		Supervised Delivery		TOTAL %		Chi-square	P-Value
	Freq.	%	Freq.	%				
State of the road to health Facility[2]								
VERY GOOD	6	50	6	50	12	(100.0)		
GOOD	51	46.8	58	53.2	109	(100.0)		
FAIR	71	93.4	5	6.6	76	(100.0)		
BAD	25	32.1	53	67.9	78	(100.0)	71.45	0.000
VERY BAD	43	71.7	17	28.3	60	(100.0)		

[2] n = 335

Accessibility Factors	Unsupervised Delivery		Supervised Delivery		TOTAL %	Chi-square	P-Value
	Freq.	%	Freq.	%			
Geographical Accessibility[2]							
VERY ACCESSIBLE	**7**	**31.8**	**15**	**68.2**	**22 (100.0)**		
FAIRLY ACCESSIBLE	**134**	**58.0**	**97**	**42.0**	**231 (100.0)**	**8.96**	**0.011**
NOT ACCESSIBLE	**55**	**67.1**	**27**	**32.9**	**82 (100.0)**		

From **Table 23**, the further the distance of residence of the respondents from the health facility, the more likely is she to have unsupervised delivery. Of those who said they lived far from the health facility only 38.6% of them had supervised delivery, while those who said they lived near the health facility 59.5% of them had supervised delivery, p=0.000

Of those who said the road was good, 53.2% had supervised delivery whilst those who said the road was very bad only 28.3% had supervised delivery. p=0.000.

Respondents who had it easy getting a vehicle from their residence to the health facility had higher supervised delivery rate, 64.7%, compared to respondents who expressed having difficulty in getting a vehicle from their residence to the health facility, 38.9%. P = 0.004.

Geographical accessibility was thus found to be significant in determining whether a woman who attends prenatal service will have supervised delivery. Where

health facility is very accessible, 68.2% of the respondents had supervised delivery, whereas where health facility is not accessible, only 32.9% of the respondents had supervised delivery, p=0.000.

4:5:4 The effect of person making decision on where to deliver, on supervised delivery

TABLE 24. PERSON MAKING DECISION AND ITS EFFECT ON SUPERVISED DELIVERY[1]

Person making Decision	Unsupervised delivery		Supervised delivery		TOTAL		Chi-square	P-Value
	Freq.	%	Freq.	%		(%)		
SELF	**37**	**46.8**	**42**	**53.3**	**79**	**(100.0)**		
HUSBAND	**107**	**51.0**	**103**	**49.0**	**210**	**(100.0)**		
MOTHER	**36**	**67.9**	**17**	**32.1**	**53**	**(100.0)**	**29.66**	**0.000**
MOTHER-IN-LAW	**31**	**96.9**	**1**	**3.1**	**32**	**(100.0)**		

From **Table 24**. a woman who makes her own decision about where to deliver is more likely to have supervised delivery, 53.3%, than a woman whose mother-in-law, 3.1%, mother, 32.1% or husband makes this decision.

[1] n=374

4:5:5 The effect of the presence of trained TBAs and midwives in communities on supervised delivery

Where there are trained TBAs in the communities, women tend to deliver with them and thus supervised delivery is high in such communities, 71.6% compared to communities without trained TBAs, 8.8%. (p = 0.000).

The presence of midwives in communities also results in a higher supervised delivery rate, 61.5%, compared to communities without midwives, 41.5% (p=0.016).

Comparing the utilisation of midwives who are present in the communities of respondents to the utilisation of trained TBAs in communities of the respondents, there appears to be no significant difference, p=0.058, although for the TBAs there was a higher supervised delivery, 76.2%, compared to the midwives, 61.5%.

4:5:6 Knowledge of the presence of trained TBAs in the community of respondents and its effect on supervised delivery

Among the 374 women who attended prenatal service, their knowledge as to the presence or absence of trained TBA in their community was assessed. Among 193 respondents who lived in communities with trained TBA, nine (4.7%) were not aware that there was a trained TBA in their community. Lack of knowledge about the presence of TBAs affects supervised delivery. Of the 184 respondents who knew there were trained TBAs, 79.3% (146) had supervised delivery. Of the nine who did not know, only 11.1% (1) had supervised delivery (p=0.000).

4:5:7 Reasons for Unsupervised Delivery given by Respondents

For the 67 respondents who admitted to delivering at home alone, precipitated delivery was the commonest reason given for this (70.1%). Financial constraint was the second most common reason for delivering at home alone (14.9%) **(Table 25.)**

TABLE 25. REASONS GIVEN BY RESPONDENTS FOR HAVING UNSUPERVISED DELIVERY

REASONS	Home Alone % N = 67	Untrained mother-in-law % N = 83	Untrained TBA % N = 61
DELIVERY OCCURRED VERY QUICKLY	**70.1**	**8.4**	**9.8**
FINANCIAL CONSTRAINT	**14.9**	**14.5**	**23.0**
WAS ALONE IN THE HOUSE	**9.0**		
TRADITIONAL PRACTICE	**3.0**	**3.6**	
PERSONAL PREFERENCE	**1.5**	**2.4**	**4.9**
DELIVERY HAS ALWAYS BEEN NORMAL		**33.7**	**19.7**
LACK OF TRANSPORT		**20.5**	**9.8**
NO TRAINED ATTENDANT IN THE COMMUNITY		**7.2**	**9.8**
HAS CONFIDENCE IN THE ATTENDANT		**3.6**	**6.6**
HEALTH FACILITY WAS FAR		**3.6**	**4.9**
LABOUR STARTED AT NIGHT		**2.4**	**1.6**
NO CAPABLE /RESPONSIBLE PERSON WAS AROUND	**1.5**		**9.8**
TOTAL	**100.0**	**99.9**	**99.9**

Of the 83 women who delivered at home attended by untrained mother-in-laws, the commonest reasons given for this were : delivery has always been normal (33.7%), lack of transport (20.5%) and financial constraints (14.5%).

Sixty-one respondents said they delivered at home with untrained TBAs. The main reasons they give for doing this was; financial constraints (23.0%) and that delivery has usually been normal (19.7%).

The reasons that was common for all the three types of unsupervised delivery were:

- Delivery occurred very quickly
- Financial constraint
- Personal preference

4:5:8. Reasons selected by respondents for having unsupervised delivery

The women who admitted to having had unsupervised delivery were given options to choose, which factors influenced their choice of having unsupervised delivery. Lack of transport was the commonest reason chosen as a reason for unsupervised delivery (47.7%). **(Table 26.)**

TABLE 26. REASONS SELECTED BY RESPONDENTS FOR HAVING UNSUPERVISED DELIVERY

REASON	YES	NO
LACK OF TRANSPORT	**112 (47.7%)**	**123 (52.3%)**
CANNOT AFFORD COST	**96 (40.9%)**	**139 (59.1%)**
DISTANCE TO HEALTH FACILITY TOO FAR	**88 (37.4%)**	**147 (62.6%)**
ON ADVISE OF HUSBAND /MOTHER-IN-LAW	**19 (8.1%)**	**216 (91.9%)**

4:5:9 Reasons given by respondents for Supervised Delivery

The commonest reason given for delivery with trained TBAs was; history of previously normal delivery, or an easy uncomplicated delivery during the last delivery (42.6%). Thirty-three (28.7%) said they delivered with the trained TBA because they have been trained to conduct deliveries and that they are capable of performing this role. **(Table27.)**

TABLE 27. REASONS GIVEN BY RESPONDENTS FOR HAVING SUPERVISED DELIVERY.

REASONS	Trained TBA %	Health Facility %
FINANCIAL CONSTRAINT	7.0	
IT IS SAFE / IT IS A GOOD PLACE TO DELIVER		60.0
WAS ADMITTED FOR AN ILLNESS		6.7
HAD DIFFICULT DELIVERY		8.9
PREFERENCE OF HUSBAND		4.4
REFERRED BY TRAINED TBA		2.2
FIRST DELIVERY		2.2
ATTENDED PRENATAL SERVICE AT FACILITY		4.4
HEALTH FACILITY IS IN THE COMMUNITY		2.2
LABOUR STARTED AT NIGHT	2.6	
DELIVERY IS USUALLY NORMAL	42.6	2.2
TRAINED AND COMPETENT ATTENDANT	28.7	
DELIVERY OCCURRED VERY QUICKLY	5.2	
LACK OF TRANSPORT	4.3	
HAS CONFIDENCE IN ATTENDANT	5.2	
PERSONAL PREFERENCE	1.7	6.7
NO CAPABLE OR RESPONSIBLE PERSON AROUND	1.7	
HEALTH FACILITY TOO FAR	0.9	
TOTAL	99.9	99.9

Of the 45 respondents who delivered at the health facility, 27(60%) said they did this because, it is safe and it is the best place to deliver. The reasons given by respondents

for choosing either option of supervised delivery were very different. The only reasons that were given for both options was personal preference and usually normal delivery.

Three of the respondents said they delivered with their mother-in-laws who are trained. Two (66.75%) said they did this because the mother-in-law has been trained and is capable while one said she had confidence in the mother-in-law.

4:5:10. Cultural practices and belief affecting supervised delivery

Of the 374 respondents who attended prenatal service, their response to the influence of certain specific cultural practice and belief was mostly negative. **(Table 28)** shows the number of respondents who admitted to being influenced by the stated cultural belief and practices and their supervised delivery rates.

TABLE 28. CULTURAL PRACTICES AND BELIEF AFFECTING SUPERVISED DELIVERY (N=374)

Practice/belief	frequency of respondents who said yes	% of respondents who said yes	Frequency of respondents who said yes and had supervised delivery	%who had supervised delivery
POSTURE OF DELIVERY	**5**	**1.3**	**1**	**20.0**
PLACENTA DISPOSAL	**2**	**0.5**	**0**	**0.0**
SPECIAL RITE PERFORMED FOR BABY AND MOTHER	**2**	**0.5**	**0**	**0.0**

4:5:11.Customary observance that prevents having a baby outside the home

Of the 374 who attended prenatal service, only 8 (2.1%) admitted to a cultural belief that prevented delivering a baby outside the home. Of the total 400 respondents interviewed, only 13 (3.3%) admitted to a cultural practice that prevents delivering a baby outside the home. All these respondents admitting to this belong to the Kokomba ethnic group and are traditionalist. Customary observance does not have a significant influence on decision for supervised delivery (P=0.990 Yates corrected).

One of the respondents declined to specify the customary observance that prevented delivering a baby outside the home. Two main customary observances were however obtained from the others. These are:

- To prove the faithfulness of the woman
- The deity they worship demand that they deliver in the house of the deity attended by the deity.

4:5:12 Husbands' choice of place of delivery

Of the 250 men whose wives had attended prenatal service, out of the total of 273 men interviewed, 151 (60.4%) wanted their wives to deliver their babies in a health facility. Husbands' choice as to where their wives should deliver their babies is a significant factor associated with supervised delivery. Women whose husbands said they preferred their wives to deliver at the health facility had a significantly higher supervised delivery, 50.3% compared to those whose husbands preferred untrained attendants, 6.8%. **(Table 29.)**

TABLE 29. HUSBANDS'CHOICE OF PLACE OF DELIVERY AND ITS EFFECT ON SUPERVISED DELIVERY[1]

Choice of Husband	Unsupervised delivery		Supervised delivery		TOTAL	Chi-square	P-Value
	Freq.	%	Freq.	%	%		
At home with mother / At home with TBA (untrained)	**55**	**93.2**	**4**	**6.8**	**59 (100.0)**	**46.73**	**0.000**
At home with TBA (trained)	**12**	**30.0**	**28**	**70.0**	**40 (100.0)**		
At Health facility	**75**	**49.7**	**76**	**50.3**	**151 (100.0)**		

4:5:13. Reasons given by Husbands for their choice of place of delivery for their wives

One hundred and thirty eight (92.1%) of the 151 husbands who chose the health facility, gave safety, and the fact that it is good for the health of their wives if they deliver there as the reason for their choice. Two (1.3%) said they had confidence in the attendants at the health facilities.

Of the 40 who wanted their wives to deliver with the trained TBAs, the reasons they gave for this is as shown in **Table 30.**

[1] n=250

TABLE 30. REASONS OF HUSBANDS FOR CHOOSING TRAINED TBAs AND UNTRAINED TBAs

REASONS	Trained TBA % N = 40	Untrained TBA % N =19
HAS CONFIDENCE IN ATTENDANT	**52.5**	**5.3**
FINANCIAL CONSTRAINT	**25.0**	**52.6**
DELIVERY IS USUALLY NORMAL	**12.5**	**10.5**
TRANSPORTATION DIFFICULTIES	**5.0**	**21.1**
WANTS WIFE TO MAKE OWN DECISION	**2.5**	
DISLIKES HEALTH FACILITY	**2.5**	
BAD ROAD		**5.3**
TO PROVE FAITHFULNESS OF WIFE		**5.3**
TOTAL	**100.0**	**100.1**

Of the 40 respondents who wanted their wives to have home delivery with the mother of the man, transportation difficulties faced in getting to the health facilities, was the major reason given for this choice, 27.5%. **(Table 31.)**

TABLE 31. REASONS FOR HUSBANDS CHOOSING THEIR MOTHERS

REASONS	FREQUENCY	PERCENTAGE %
TRANSPORTATION DIFFICULTIES	**12**	**30.0**
HAS CONFIDENCE IN ATTENDANT	**11**	**27.5**
FINANCIAL CONSTRAINTS	**10**	**25.0**
THE DELIVERY OF THE WIFE IS USUALLY NORMAL	**3**	**7.5**
MOTHER IS TRAINED	**2**	**5.0**
TRADITIONAL BELIEF DOES NOT ALLOW FOR DELIVERY OUTSIDE THE HOME	**1**	**2.5**
PERSONAL PREFERENCE	**1**	**2.5**
TOTAL	**4O**	**100.0**

CHAPTER 5

DISCUSSION

This study showed that there is indeed significant difference between the utilisation of prenatal service and supervised delivery service in the district as found from the institutional data ($p = 0.000$). **(Table 2.)**

The distribution of the study population, with majority of the women residing in the Yendi sub-district, is representative of the district population. (Yendi District Assembly. The profile of Yendi district, 1998) Thus the results of this study can be generalised for the whole district.

The high coverage obtained in the survey may be due to the fact that the population base used to calculate the routine district coverage is a projection from the 1984 national population census, using a constant projection factor which does not take into account demographic changes like changes in mortality, births and migration over the years. The population may thus be much lower than it is being estimated. The ethnic conflict in 1996 caused displacement of a lot of people from the district some of whom have never returned to the district after the conflict.

Another explanation for this apparently high coverage obtained in the survey is, under reporting of supervised delivery by midwives. In Adibo sub-district, routine reporting gave the number of supervised delivery by the health facility as two; the survey also found two respondents saying they delivered at the health facility. In Bunbonayili sub-district routine data reported two health center supervised delivery, while the survey found three women selected randomly within the sub-district who said they delivered at

the health facility. There has been suspicion of under reporting by midwives in the district because of monetary incentive of not reporting when user charges were introduced. Money charged for these unreported supervised delivery cannot be traced by the district health administration and goes to the midwife. Midwives have been reported to have been charging exorbitant fees which are not accounted for[J] What further lends credence to this allegation of exorbitant charges by the midwives and possible under reporting of their activities so as to account for less to the district health administration is the fact that one of the commonest reasons given by both women and their husbands for having unsupervised delivery is that of their inability to pay for supervised delivery. **(Tables 25,26,30 and 31.)** This should not be the case if the official charge of 500 cedis was being charged. Fortunately the introduction of fee-free delivery service in the Northern Region may take away the financial incentive of under reporting. It is however important to note that if the full potential of midwives to provide safe, effective and low-cost care to women during their reproductive lives are to be realised, midwives in rural communities should be provided with the means to sustain themselves financially (Peters, 1997).

These explanations however, do not dispute the fact that prenatal service is more utilised than supervised delivery in Yendi district. Similar findings of this difference or gap between prenatal service and supervised delivery coverage have been found in many parts of the developed world (WHO/RHT/MSM/96.28,1996; Owa et al, 1992). To reduce maternal mortality in the Yendi district, it is important that the maternal services provided are utilised optimally (McCarthy and Maine, 1992).

[I] TBA in Adibo sub-district, personal communication

Looking at the background characteristics of the respondents attending prenatal service and their effect on supervised delivery, it is found that in the Yendi district the age of the woman attending prenatal service was associated with her decision to have supervised delivery. Women below the age of 25yrs and those above 39yrs are more likely to have supervised delivery. **(Table 21.)** This is contrary to what was found in a study in Saudi- Arabia, where elderly women were found to have a higher unsupervised delivery rate compared to younger women (Rasheed and Khan, 1990). In the Yendi district, these younger women below 25yrs, are usually delivering for the first time, so they tend to have more supervised delivery, while the older women are often counselled by health personnel to have supervised delivery on account of their age and parity. This assertion is supported by the fact that from the study women with parity eight and above tend to have a significantly higher supervised delivery. **(Table 21.)** The younger women on the other hand, are more educated, and as has been found in other studies, they are more likely to have supervised delivery compared to the older uneducated respondents (Rasheed and Khan op.cit.).

The sub-district of residence of the respondent also appears to have an influence on a woman having supervised delivery. This is linked with the availability of trained midwives and trained TBA in the sub-district. Bunbonayili has only one trained TBA, **(Table 3.)** and they have the lowest supervisory delivery, 20.5%. This is contrary to what was found in a survey on the use of obstetric services in rural Nigeria (Nwakoby, 1994). That study did not find any significant association between place of residence and supervised delivery. In another study conducted in a small Nigerian community, it was found that provision of relatively accessible services does not guarantee their use (Brieger

and Luchok, 1994). In the Yendi district, the study showed that the presence of a trained TBA or a midwife in a community is significantly associated with improved supervised delivery in these communities. The availability of supervised delivery service within a sub-district is the factor that is making the sub-district of residence significant in this study.

Ethnicity was also found to be significantly associated with supervised delivery. The Dagombas were found to have a higher supervised delivery than the Kokombas. One of the reasons for this may be the extent to which supervised delivery is available to each of these ethnic groups. The ethnic conflict made most health facilities, which are, with the exception of Bunbonayili and Ngani sub-districts, located in predominantly Dagomba communities, inaccessible to the Kokombas. It is quite recently that tension and mutual suspicion have diminished and Kokombas have started moving back into the district and have started utilising the health facilities. Bunbonayili sub-district with a predominance of Kokomba communities has only one trained TBA for the whole sub-district. **(Table 3.)**

Religion is not a significant factor influencing supervised delivery when ethnicity is taken into consideration contrary to what was found by Nwakoby (Nwakoby, op.cit.).

Educational status of the respondents was not significantly associated with supervised delivery. This is contrary to what has been found in other studies done in Saudi Arabia (Rasheed and Khan, op.cit.), Nigeria (Nwakoby, op.cit.), Ghana (Kumekpor and Richardson, 1992) and Sri-Lanka (Senanayake, 1998). This may be due to the fact that the level of literacy found in this study was very low (7.5%), so its effect on supervised delivery could not be well elicited statistically. That educational status of the

respondent may be significant in determining supervised delivery in women attending prenatal service is shown by the fact that 80%(4) of women in the study with post-primary education had supervised delivery. Considering this, then education of the woman attending prenatal service can be said to be significantly associated with supervised delivery as has been found by other authors. Another important explanation for this finding of the effect of the educational status of the woman on supervised delivery in this study, is the definition of supervised delivery used in this study. Whereas the studies mentioned before looked at factors associated with health facility delivery, which is known to be used more by educated women, (McCarthy, 1997) this study looked at factors of significance associated with both health facility delivery and home delivery by trained TBAs.

Occupation of the respondents was found to be significantly associated with supervised delivery. Women who are farmers or labourers had a lower supervised delivery rate compared to those who are artisans, traders or housewives. This may be linked with the ability of the individual to pay for the supervised delivery service as which affects its utilisation, as has been found by Ekwempu in Nigeria (Ekwempu, 1990). Artisans and traders have a regular source of income compared to farmers or labourers whose income is seasonal, they are generally better off than the women who are farmers or labourers who in most cases, especially the farmers, because they work on their husbands' farms, do not control the wealth they generate. With the housewife, who although not working, using the argument of affordability appear to be conflicting, is really a true reflection of what pertains socially in the district. With the low level of incomes of most families in the district, most wives do some sort of work to supplement

the families' income, it is only the very affluent who can afford their wives to be housewives. One other issue that lends credence to the fact that occupation of the woman attending prenatal is significant in determining who has supervised delivery, because of their ability to afford the cost of supervised delivery is the effect of the person making the choice of where to deliver.

In this study most of the respondents admitted that it was their husbands who made the decision about where they are to deliver, as has been found by other authors. (Thaddeus and Maine, 1990). However those who admitted to making this decision themselves had a significantly higher supervised delivery compared to those who had this decision being made by another person. **(Table 24.)** In a society where most of the important decisions are made by men, for a woman to make decisions concerning where she will deliver her baby means that such a woman is empowered, it is only when a woman has an income and is not completely dependent on the husband that this becomes possible. This explains why occupation of the respondents is significantly associated with supervised delivery. A woman who has an occupation has her own income thus can make decisions as to where to deliver because she can afford the cost of the service. The study also showed that women who made their own decisions about where to deliver had significantly higher supervised delivery rate. **(Table 24.)**

In general women who were classified as being of a low socio-economic class had lower supervised delivery rate (42.4%) compared to those classified as being of a higher socio-economic class (81.8%).**(Table 21)** This finding is consistent with what has been reported by other studies (Rasheed and Khan op.cit; McCarthy, op. cit.). It confirms the

already mentioned finding that financial accessibility is one of the important factors associated with supervised delivery.

Educational status of the husband of the woman attending prenatal service is significantly associated with supervised delivery.**(Table 21.)** A similar finding was also reported in a rural community survey in Nigeria (Nwakoby, op cit.). This goes to support the assertion that higher socio-economic status is significantly associated with supervised delivery. A husband's educational status to some extent determines a family's socio-economic status, and ultimately the ability of the family to afford supervised delivery service.

From the study, satisfaction of the woman with prenatal service was significantly associated with supervised delivery, although on the whole dissatisfaction with prenatal service was low (11.2%) Satisfaction in this study was defined as patient perceived positive respondent-health personnel interaction at the prenatal service. This is a valid variable, although it does not provide information on what constitutes this satisfaction. The fact that most of the respondents who were dissatisfied attended prenatal service at the hospital (81.0%) gives an idea as to what factors constitutes dissatisfaction. Some of these are long waiting hours, impersonal atmosphere, difficulty in locating service points and overcrowding as found by Kloos et al, (1987) and Kumekpor and Richardson, (op.cit). As a subjective client assessment of the service being rendered, it can provide a base line information that can be useful for patient focused service delivery programmes. Women who were satisfied with prenatal service had a significantly higher supervised delivery compared to those who expressed dissatisfaction with the service. **(Table 22.)** Women who were satisfied with prenatal service had a higher number of attendance at

prenatal clinic than those who were dissatisfied, and attendance of prenatal service for more than three times is significantly associated with supervised delivery. In a study conducted in Tunisia, women who expressed dissatisfaction with prenatal service said they have been treated with disrespect by health personnel, and this prevented them from delivering at the health facility (Auerbach,1982.). This is very unfortunate because, the purpose of prenatal service apart from identifying risk pregnancies is meant to engender confidence of the pregnant woman in the health staff and thus encourage them to deliver at the health facility. That the average number of prenatal attendance for pregnant women in the Northern Region is 2.4 further explains why supervised deliveries in the Region as a whole is low (MCH/FP Unit Annual Report, 1997). The WHO recommends at least four visits. (WHO, Safe motherhood, 1998). From the study, this is the least number of visits that is significantly associated with supervised delivery. **(Table 22.)** Increase in the number of prenatal attendance, which will result in a significant increase in the rate of supervised delivery, can only be achieved when clients are satisfied with the service they receive at the prenatal clinic. That health facilities in the Yendi district have not been able to satisfy their clients and enhance their confidence in them is further buttressed by the fact that whereas for even the untrained attendants, having confidence in them was one of the reasons given for their use by respondents, for those who chose to deliver at the health facilities, their main reason for doing this was because it was safe. They had confidence in the technology available, and not the health personnel themselves. This assertion is however contentious, as the principal investigator does not understand Dagbani, but was informed that making this distinction is difficult when it is spoken in

Dagbani.[k] What cannot be disputed from this study however is that client satisfaction with prenatal service, is associated with increase in number of prenatal visits, and increases the chance of a woman having supervised delivery.

Geographical accessibility was significantly associated with supervised delivery. This is one factor that has consistently been found to be associated with supervised delivery (Howson et. al, 1996;Walker et. al, 1986). Geographical accessibility takes into consideration, the distance of the residence of the respondents from the health facilities, the nature of the terrain and the availability or ease of getting transport to the health facility. All these factors have been found to affect supervised delivery (Howson op.cit.). This is the basis of using these factors to derive a composite variable to assess geographical accessibility (Abramson, 1990). In this study respondents who said they lived far from health facilities had significantly less supervised delivery (38.5%) compared to those who lived near the health facilities, (59.6%). **(Table 23.)**

The problem of distances of residents to health facilities is a peculiar problem of the Northern Region because of the sparse population distribution and large landmass. It has been estimated that the Region needs 350 health institutions offering maternal health services per 8km radius. At present the Region has only 108 health facilities per 8km which is just 30.9% of the expected number (MCH/FP Annual Report, 1997). That distance is a problem affecting supervised delivery is shown by the fact that 77.3% of respondents attending prenatal service said they lived far from health facilities. **(Table 23.)**

Difficulty in getting a vehicle was also found to be one of the important barriers to access. Majority of the respondents (89.9%) who attended prenatal service and had no health facilities in their communities said they had difficulty in getting a vehicle to the health facilities. **(Table 23.)** The major mode of transportation in the district is the bicycle and most of the communities do not have any commercial vehicles plying their routes to the district capital, Yendi, so difficulty in getting a vehicle was a problem that

[k] Dr Agana. Municipal Director of Health Services Tamale, personal

was significantly associated with unsupervised delivery. **(Table 23.)** One of the reasons given by respondents for having unsupervised delivery was difficulty in getting transport. **(Table 26.)** Kumekpor and Richardson also reported similar findings (Kumekpor and Richardson, op.cit.). In a study in Uganda, transportation difficulties were found to be a major factor contributing to the low level of institutional delivery (Njie,1998).

From this study, of the 374 respondents who attended prenatal service, 163 (43.6%) of them had unsupervised delivery. 23.8% of the 400 respondents were assisted by family TBAs,[1] who are present in all the communities of the district. In communities where there is a midwife, supervise delivery rate is 61.5%, where there is a trained TBA the supervised delivery rate is 76.2%, so contrary to what was found in a study in a small Nigerian community which concluded that provision of relatively accessible service does not necessarily guarantee their use (Brieger and Luchock, op. cit.), in the Yendi district, provision of accessible trained personnel results in an increase in its utilisation, despite the presence of family TBAs. This is contrary to what has been reported in a statement by WHO/UNFPA/UNICEF in 1992, which claimed that in communities where there are untrained TBA for families, trained traditional birth attendants when available are not utilised.

The posture of delivery, disposal of placenta, the presence of family members and special rites performed for both mother and baby were not cultural factors which were significantly associated with supervised delivery. Only about 1% of the 374 respondents who attended prenatal service said the posture of delivery affected their choice of where to deliver. It was found that these factors were only significant in small group of

[1] In the Yendi district these are usually untrained mother-in-laws of the respondents communication.

Kokombas who are traditionalists, worshipping a deity which prescribes specific delivery practices, like delivering in the house of the deity unassisted till the baby is out, before attendants come in to cut the cord and deliver the placenta. This is insignificant as a cause of unsupervised delivery taking the district as a whole. So for the Yendi district which has a predominantly Moslem community, these factors are not important determinants of supervised delivery.

The utilisation of trained TBAs by women in the Yendi district is thus not because of their cultural acceptability, which is one of the reasons for the training and use of TBAs (Smit, 1994), but rather because they are more accessible. There are 95 trained TBAs in the sub-districts compared to 7 midwives in the sub-districts. Looking at communities with either trained TBAs or midwives their utilisation by the communities are not significantly different. This is contrary what has been found in most rural areas in Africa (Jaffre and Prual, 1984.; Moller et al.,1991). In the Yendi district the distances and the lack of trained midwives make the training and use of TBAs an attractive option. From this study, in the Yendi district given a choice, most husbands will prefer their wives to deliver at the health facilities because it is safe. This is an interesting finding given the fact that it has been concluded by most authors that although trained TBAs can be used to increase supervised delivery it has not been found to result in a decrease in maternal mortality which is the main aim of trying to improve supervised delivery (WHO/UNFPA/UNICEF World Bank Statement, 1999; Maine, 1997). The need for the health service to provide service that addresses the needs of the communities needs to be always considered when providing the service.

CHAPTER 6

6.0 CONCLUSION AND RECOMMENDATION

6.1 Conclusion

From this study conducted in the Yendi district, the factors, which are significantly associated with supervised delivery in women attending prenatal service, are:

- The age of the woman.
- The place of residence.
- Ethnicity.
- Parity
- Educational status of women and their spouses.
- Occupational status of the women and their spouses.
- Socio-economic status
- Satisfaction of women with services offered at the prenatal service.
- The number of times that women attends prenatal service.
- The distance of residence from health facility.
- The ease of getting transports to the health facility.
- Geographical accessibility of health facility.
- Access to the services of either a trained TBA or midwife.
- Financial accessibility.
- Women making their own decision about where to deliver.

There appear be no significant difference in the utilisation of trained TBAs and midwives if they are equally accessible to the women. Given the choice, husbands who

make decisions about where the women should deliver will prefer their wives to deliver at the health facility.

From the study, the factors that influence supervised delivery that can be manipulated are the educational status of the women and their husbands, occupational status of women and their husbands, satisfaction with prenatal service, accessibility to supervised delivery service and improvement in the geographical accessibility.

6.1 Recommendations

Based on the above conclusions, it is obvious that improving supervised delivery service requires an inter-sectoral approach. This is because the factors which are of significance in determining whether a woman has supervised delivery goes beyond the purview of just the Ministry of Health. Fortunately in the Yendi district, with the support of UNICEF, the District Assembly assisted by the other sectors and other stakeholders have a district plan of action which they are implementing. The recommendations that are being proposed take into consideration the existing structures for programme implementation in the district. The conceptual framework developed for the interventions for improving supervised delivery looks at direct interventions which will deal directly with factors that will go to improve supervised delivery in the short term. Most of these factors will need to be handled by the health authorities. The indirect interventions on the other hand are to create the environment that will facilitate the successful implementation of the direct interventions. It is a long-term approach of ensuring sustainability of improvement in supervised delivery. For the direct interventions to make an impact in improving supervised delivery an attempt should first be made to implement some of the indirect interventions. For example, an increase in the number of trained personnel in the

district without improvement in the ease of getting a vehicle from the communities to these facilities will make very little impact on improving supervised delivery.

CONCEPTUAL FRAMEWORK FOR IMPROVING SUPERVISED DELIVERY IN THE YENDI DISTRICT TO DECREASE MATERNAL MORTALITY

INDIRECT INTERVENTIONS	DIRECT INTERVENTIONS
GES, School for life and WUSC should intensify their literacy drive	The District health service should see how best to implement the MOH policy that all trained midwives should practice midwifery so as to improve access to supervised delivery.
District Assembly, UNICEF and the various NGOs in the District e.g. 31st December Movement should provide income generating activities for the women and empower them.	The District Health Services should find means of providing some allowances for the midwives in the communities as an incentive for their working in the deprived rural communities.
The District Assembly should provide an enabling environment for private entrepreneurs to create jobs.	The District Health Service should train all the midwives and community health nurses in the use of GATHER [1] as a counseling technique
GPRTU should encourage its members to expand their operations into some of the big communities in the district	The District Assembly and the district health services should build/refurbish health facilities to ensure privacy of clients and a congenial atmosphere for delivery
The Regional Health Administration and UNICEF should consider establishing radio link between the Health facilities and the District	The Regional Health Services with UNICEF should consider introducing the bicycle ambulance, which UNICEF pioneered in Uganda.

[1] Steps to be followed in Reproductive Health counseling G= Greet A= Ask T= Tell H = Help E= Explain R= Return

INDIRECT INTERVENTION	DIRECT INTERVENTION
The Regional Health Administration, UNICEF and the District Health Administration should consider establishing Ambulance services between the health centers and the District Hospital.	The Health Service should create awareness about the free delivery service and monitor its implementation in by all health facilities.
The District Health Administration should conduct research to find out what makes for client perceived satisfaction in maternal health service provision.	The District Health Administration should identify all men's groups in the district and target them for health education on the benefits of supervised delivery.
	The District Health Services with the help of UNICEF should provide basic equipment and training for basic prenatal service laboratory investigations.
	There should be more interactions between health personnel and trained TBAs.The Regional Health Administration and the District Health Administration should develop a supervisory checklist for supervising trained TBAs. Any further training of TBAs in the district should assess the cost effectiveness of using this approach to improve supervised delivery and its acceptability to the community compared to using midwives

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APPENDICES

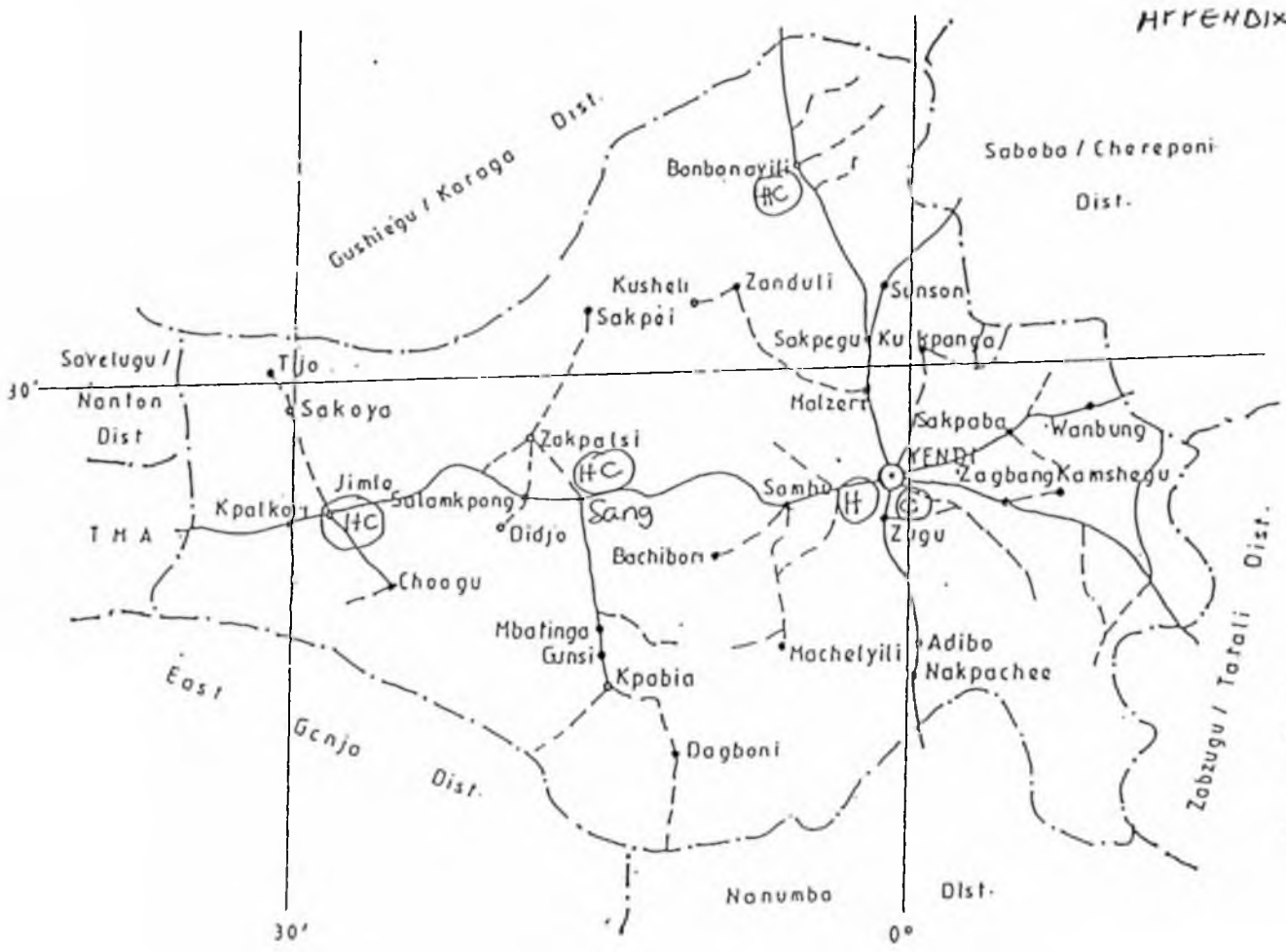

FIGURE 3 MAP OF ROAD NETWORK - YENDI DISTRICT.

APPENDIX 2.

SAMPLE SIZE CALCULATION

The formula for obtaining significant results, using two proportions to get the minimum sample size needed for the study was used.

The formula is:

$$N > \frac{\{u[p1(1-p1)+p2(1-p2)]^{1/2} + v[2p(1-p)^{1/2}\}^2}{(p2-p1)^2}$$

where $p = \frac{p1+p2}{2}$

p1= 28.5%= percentage of women who attended prenatal care and had supervised delivery.

p2 = 43.28% = percentage of women who attended prenatal care but chose to deliver at home unsupervised.

u = power = 80% = 0.842

v = significant level = 5% = 1.96

$$N > \frac{\{0.842\,[0.285(1-0.285) + 0.433(1-0.433)]^{1/2} + 1.96\,[2 \times 0.355\,(1-0.355)]^{1/2}\}^2}{(0.433-0.285)^2}$$

N > 163 for each proportion. As groups are unequal, of ratio approximately 1: 2

Adjustment to smaller size group

¾ x 163 =122 Larger group = 122 x 2 =244

TOTAL = 122 +244 = 366

400 was taken as sample size to cater for non-response and incomplete questionnaires.

APPENDIX 3

UTILISATION OF MATERNAL SERVICES IN THE YENDI DISTRICT

QUESTIONNAIRE

INSTRUCTION TO INTERVIEWER

Interview any woman in the reproductive age (15-49) who admits to having given birth to a child either dead or alive in 1998. If there is more than one woman in the house, select one by random sampling for the interview

INTRODUCTION

1.Subdistrict <A> 1.1 TBA PRESENT <Y>

BACKGROUND INFORMATION

4 Age ##.# 5 Ethnicity<A> a. Dagomba b. Kokomba c. Nanomba d. Other

6 Religion <A> a. Traditional b. Christian c. Moslem d. Others

7 Marital status <A>
a. Married
b. Divorced
c. Single
d. Seperated
e. Widowed

8How many wives has your husband? <A>. a.1 b.2 c.3 d.4 e.5 and more f.N/A

9 What is your position among the wives <A>. a.1 b.2 c.3 d.4 e. 5 and more f.N/A

10. Parity: ## a.1 b.2 c.3 d.4 e 5 and more

SOCIOECONOMIC STATUS

11.Educational status of respondents <A> a. None b. Primary/JSS c. Secondary/SSS d. Tertiary

12. Occupation of respondents <A> a. Labourer b. Farmer c. Artisan d. Trader e. Civil servant f. Housewife g. Other

13. Educational status of {husband}<A> a. None b. Primary/JSS c. Secondary/SSS d. Tertiary

14.Occupation of husband :<A> a. Labourer/casual work b.Farmer c. Artisan d. Trader e. Teacher f. Civil servant g. Other

PRENATAL SERVICE

15.Did you attend prenatal service<Y> when you were last pregnant? a. Yes b. No

16. Where did you attend prenatal service during your last pregnancy <A>
a. TBA b. Health center c. Hospital d. Other e. N/A

17.How many times did you attend<A> prenatal service

a.1
b.2
c.3
d.4
e.5 and more
f. N/A

18.Were you satisfied with the service you received? <A>

a. Very satisfied
b. Satisfied on the whole
c. Dissatisfied
d. Very dissatisfied
e. Does not know
f. N/A

ACCESSIBILITY

19.Are delivery services offered where you attended prenatal service <A> a. Yes b. No c. Does not know d. N/A

20.How far is the nearest health facility<A> where delivery is offered from your house

a. Very far b. Far c. Not far(In adjacent community) d. Not far(in same community) e. N/A

21.What is the state of the road <A> to the delivery service(if outside the community)

a. Very good
b. Good
c. Fair
d. Bad
e. Very bad
f. N/A

22.Is it easy to get a vehicle to the <A> delivery service

a. Very easy
b. Easy
c. Difficult
d. Very difficult
e. N/A

DELIVERY

23.{Where} did you {deliver} your <A> last child? a. Home alone
b. Home with mother-in-law (untrained)
c. Home with untrained TBA OR other relatives(untrained)
d. Home with trained TBA
e. Health facility f. Home with mother-in-law (trained)

23.1 Why <A> ----------

24.Who decides where you should deliver <A> a. self b. husband c. mother d. mother-in-law e. others

25. Are there any trained TBAs in your community <A>
a. Yes b. No c. Don't know

26. What are the reasons why you delivered at home with untrained attendant?

a. Cannot afford the cost of delivery with trained attendant <A>
a. Yes b. No c. N/A

b. Lack of transport <A> a. Yes b. No c. N/A

c. On advise of mother-in-law/husband <A> a. Yes b. No c. N/A

d. Distance to trained attendant too far <A> a. Yes b. No c. N/A

CUSTOMS/BELIEF

27.Are there any cultural practices/belief that prevents you from delivering with a trained attendant?
a. Posture of delivery <Y> a. Yes b. No

b. Disposal of placenta <Y> a. Yes b. No

c. Special rites performed for mother and child <Y> a. Yes b. No

d. Absence of family members <Y> a. Yes b. No

28.Are there any customary observance that prevents having a baby outside the home ? <Y> a. Yes b. No

29.Please Specify ----------

HUSBAND

30. Age:##

31. Where will you like your wife to deliver <A>
a. At home with my mother
b. At home with TBA (untrained)
c. At home with TBA (trained)
d. At health facility

Reason for choice ----------

THANK YOU