SOCIO-DEMOGRAPHIC DETERMINANTS OF ACCESS TO MODERN HEALTH CARE FOR EXPECTANT MOTHERS IN CAMEROON

Clementine Seh Takob
Department of Sociology/Anthropology,
Nnamdi Azikiwe University, Awka

Bentina A. Mathias
Department of Sociology/Anthropology,
Nnamdi Azikiwe University, Awka.

Uche I. Nwankwo
Department of Sociology/Anthropology,
Nnamdi Azikiwe University, Awka

Abstract

Under 5 and infant mortality has remained a critical problem in developing countries and Cameroon in particular. Despite the advancement in the health sector, access to modern health care for expectant mothers remains challenging in the traditional society of Northwest Cameroon. It is on this premise that the study examined the socio economic status of expectant mothers and access to modern health services in North West region of Cameroon. The study employed primary data obtained from questionnaires and focus group discussions for the analysis. The study used a logit model for its analysis. The results show that age, educational level and occupation were significant determinants of access to modern health care services at p ≤ 0.05. The study recommends that government and nongovernmental organizations cooperate in subsidizing health expenditure, improving hospital infrastructure and increasing medical attendants to improve access to modern health care for expectant mothers in North West Cameroon.

Keywords: Socio-demographic, Modern healthcare, Expectant mothers, Cameroon

1. Introduction

Health care is an important determinant of physical, mental and social well-being of people around the world, hence the general consensus that health is wealth. The health status of someone therefore significantly impacts on his/her social behaviour as well as the society at large. Utilization of maternal health facilities by women of child bearing age has direct bearing on maternal and infant morbidity and mortality. Globally, approximately 585,000 women died from pregnancy related causes in 1990 (WHO, 1996). Antenatal and postnatal care, as well as delivery care is influenced by several socioeconomic factors, such as maternal education, occupational status and income. These effects have been shown not just in developing countries, but also in industrialized countries. Foreign born status and ethnicity also affect maternal care.

Access to health care varies across countries, groups, and individuals, largely influenced by social and economic conditions as well as the health policies in place. Nations or economies have different policies and plans in relation to the personal and population-based health care goals within their societies. However statistics show that developed countries have managed their health care systems to an advanced stage and have been able to enhance health care delivery systems for all with special considerations for low income earners (Macq, Ferrhino, Brouwer, and Lerberghe, 2001). The advanced health care delivery systems include; advanced insurance schemes, home health care, health benefits and health care for the old and/or handicapped, which is generally not the case with developing countries (Huston, 2001). Social class, despite its abstract status, is, according to Illsley (1983), an effective epidemiological concept based on the recognition that paternal occupation is a sensitive indicator, not only of working conditions, but also of income, education, housing, diet and a variety of social, economic and cultural characteristics which are often loosely described as 'lifestyle'.

Correspondence concerning this article should be addressed to Clementine Seh Takob, Department of Sociology/Anthropology, Nnamdi Azikiwe University, Awka, Nigeria. (e-mail: takob.clementine@gmail.com)

Health care can contribute to a significant part of a country's economy. In 2011, the health care industry consumed an average of 9.3 percent of the GDP per capita across the 34 members of Organisation for Economic Co-operation and Development (OECD) countries. The USA (17.7%, or US$ PPP 8,508), the Netherlands (11.9%, 5,099), France (11.6%, 4,118), Germany (11.3%, 4,495), Canada (11.2%, 5669), and Switzerland (11%, 5,634) were the top spenders. However life expectancy in total population at birth was highest in Switzerland (82.8 years), Japan and Italy (82.7), Spain and Iceland (82.4), France (82.2) and Australia (82.0), while OECD's average exceeds 80 years for the first time ever in 2011: 80.1 years, a gain of 10 years since 1970. The USA comes 26th among the 34 OECD member countries, but has the highest costs by far. All OECD countries have achieved universal (or almost universal) health coverage, except Mexico and the USA (OECD, 2013).

On the other hand, the African health care delivery system is far from satisfactory. Africa lags behind all regions of the world, including other developing regions, on all indicators of better health (Akukwe 2008). The African continent bears 25% of the world's disease burden yet spends only 1% of the world's health funds and 1.3% of the world's health workers treat 15% of the world's population (Africa in Fact, 2013). Furthermore, African governments spent only $13.40 per person on health in 2011- an increase of $4 over the decade, but still far below the $50 per person recommended by the World Health Organisation (Good Governance in Africa, 2016). The challenges bedeviling health care in Africa is founded on the grossly inadequate health infrastructure and the poor efficiency of healthcare delivery.

Cameroon like many African countries, is plagued by most of the world's dreaded diseases that include; malaria, polio, diarrhea, pneumonia, schistosomiasis, sleeping sickness, yellow fever, meningitis, tuberculosis and AIDS amongst others. Some of these are due to its climatic and geographical locations adaptable for some of its viruses and/or parasites while others are due to the poor state of shelter and inadequate waste management. Nevertheless, these contingencies of the health care system in Cameroon have led to unsatisfactory health care standards especially as concerns expectant mothers. The health care system in Cameroon frequently experiences low access to quality drugs and the health concerns are further compounded by the fact that only about 5-6% of the government's budget has been allocated to health over the last decade. While the probability of dying between 15 and 60 years m/f (per 1 000 population, 2012) is 371/349 (World Health Organisation, 2015).

Unfortunately, this general trend is applicable for pregnant women and their health care in Cameroon. Malter, (2014), reports that about 6,000 Cameroonian women die from pregnancy-related causes every year. and that many cases of maternal death and disability in Cameroon result from the unsafe abortions that women resort to when faced with an unwanted pregnancy. Human resources for maternal health are limited with only 0.19 physicians per 1,000 population but nurses and midwives are slightly more common, at 1.6 per 1,000 population. The high maternal mortality ratio at 600 maternal deaths per 100,000 live births indicates that access to and quality of emergency obstetric and neonatal care (EmONC) remains a challenge (Demographic and Health Survey DHS, 2004).

Maternal, neonatal and infant mortality rates in Cameroon are among the highest in the world. In fact, the World Bank Indicators (2014) show that maternal mortality deteriorated from 670 per 1000 in 2004 to 780 per 1000 live births in 2011. When compared to other countries in 2011, the statistics on maternal mortality shows that Congo Republic records 426 per 1000 live births, 680 in Ethiopia, 390 in Senegal, 440 in Uganda, 43 in Mexico, 40 in Argentina and 26 in China (in spite of their population). These statistics are worrisome given the wide range campaign on prenatal and antenatal health care and its significance on the society. Maternal mortality in Cameroon is estimated to be 700 deaths per 100,000 live births in 2010, which is higher than the sub African average, the average for low income, low middle income

and middle income countries. This is shown below.

The Demographic and Health Survey (2004) reveals that, while the majority of expectant mothers use antenatal care, institutional deliveries are less common in Cameroon. It further suggests that over four-fifths of pregnant women receive antenatal care from health personnel (doctor, nurse/midwife, or auxiliary nurse/midwife) with 60 percent having the recommended four or more antenatal visits. Meanwhile, teen pregnancy and motherhood in Cameroon are associated with many societal issues including, lower educational levels, family systems breakdown, child hawking, higher rates of poverty, social stigma and other poorer life outcomes in children of teen mothers (Global Living, 2014).

Cameroon has instituted some policies over the years in the health care sector and some of them resulting in the health care delivery services for expectant mothers that amount to free nets, and some free vaccines. Nevertheless, the North West region like most societies in Sub-Saharan Africa is plaqued by lack of health facilities, cultural resistance, low level of education, lack of well-trained personnel, very few insurance schemes, especially for expectant mothers. As problematic as this issue is, empirical studies have seldom address the socio economic status of expectant mothers and their access to modern health services in the North West Region of Cameroon. It is therefore on the basis of this research gap, that this study proposes to critically examine the impact of age, educational level and employment on access to modern health services among expectant mothers in the North West Region of Cameroon.

2. Review of Theories

Functionalist theory of stratification propounded by Emile Durkheim set their explanations in the framework of other theories which seek to explain how society operates as a whole. They assume that society has certain basic needs or functional prerequisites that must be met if it is to survive. In this light, expectant mothers have a basic health need for them to be able to survive during the pregnancy period.

They therefore look to social stratification to see how far it meets these functional prerequisites. Parsons saw social stratification as inevitable because it derives from shared values which are a necessary part of all social systems and functional because it serves to integrate various groups in the society.

Power and prestige differentials are essential for the coordination and integration of a specialised division of labour. Finally, inequalities of power and prestige benefit all members of society since they serve to further collective goals which are based on shared values. Davis and Moore (1967) posit that the greater the functional importance of a position, the more rewards a society will attach to it. This unequal distribution of resources makes people to want to achieve and excel so as to attract societal recognition relevant or important than others. And this explains why expectant mothers with high income continue to access faster and better health services because of the recognition society attributes to the rich. They were however strongly criticised on all these points by other sociologists who argue that highly rewarded positions are not necessarily the most important ones and have seen stratification as a divisive rather than an integrating force. They have regarded it as an arrangement whereby some gain at the expense of others, and they have questioned the view that stratification systems derive ultimately from shared values. (Haralambos 2004)

This theory shows the capability of larger society to create stressful situations where people are forced to respond to conditions not by choice. Functionalism helps us to recognize that macro-level social events (like economic recessions) can affect health in a variety of ways through stress and that the effects of stress can be mitigated through social supports (Cockerham and Scrambler, 2010). The theory explains how illness, health and health care affect and is affected by other aspects of social life. The functionalist perspective draws attention to latent dysfunctions, or unintended and often unrecognized negative consequences of social patterns or behaviour. For example, poverty led to increase in women's involvement in labour force participation and has resulted in

maternal health concern which is now a major threat to maternal health.

On the other hand, Andersen and Laake (1987) have advanced a theoretical model, called the behavioural model of utilization, for determining the use of health services. According to Andersen's model, physician contacts are determined by three factors: predisposing factors, enabling factors and need factors.

The theory appears to be silent on predisposing factors which include gender, age and social status and how they could create huge inequality among healthcare consumers. Since the enabling factors include conditions that facilitate or inhibit the use of physician services, e.g. the distance to the health Centre, the type of town, working time and family size and that this also complies with several other need variables in the form of chronic diseases, disability days, new illness conditions and psychological well-being. Yet these variables seem to explain best the number of visits to physicians.

Most theoretical models view health care-seeking behavior as a result of rational individual choice. As such, they have been criticized for giving inadequate attention to the social context within which actions are taken by individuals (Zadoroznyj, 1999).

3. Empirical Evidence

A report by National Institute For Health and Clinical Excellence (2010) posit that young pregnant women aged under 20 may feel uncomfortable using antenatal care services in which the majority of service users are in older age groups. They may be reluctant to recognize their pregnancy or inhibited by embarrassment and fear of parental reaction. They may also have practical problems such as difficulty getting to and from antenatal appointments. Their findings suggested that Healthcare professionals should encourage young women aged under 20 to use antenatal care services by: offering age-appropriate services being aware that the young woman may be dealing with other social problems, offering information about help with transportation to and from appointments, offering antenatal care for young women in the community providing opportunities for the partner/father of the baby to be involved in the young woman's antenatal care, with her agreement.

Also Edie, Obinchemti, Tamufor, Njie, Njamen and Achidi (2015) examined the perceptions of antenatal care services by pregnant women attending government health centres in the Buea Health District of Cameroon. They used an observational analytic cross-sectional study amongst pregnant women attending selected government health centres in the Buea Health District. They recruited 385 consenting pregnant women for the study. Demographic and clinical data were collected using structured questionnaires. The results suggest that geographical accessibility and perceived quality of care were the predominant reasons for choosing or changing a site for ANC. One third of respondents (30.1%) attended a health centre out of their catchment health area with Buea Town health centre receiving the highest proportion of women out of the health area (56.8% of attendees). High educational level (high school and university) ($X2 = 8.714$; $p = 0.01$) and first time pregnancy($X2= 4.217$; $p= 0.04$) were significantly associated with poor satisfaction.

Ngowa, Kasia, Pisoh, Ngassam and Noa (2015) investigated the obstetrical and perinatal outcomes of nulliparous adolescent pregnancies in a reference hospital in Cameroon. The study employed a retrospective cohort study to compare the outcomes of nulliparous adolescent pregnancies to those of nulliparous women aged 20 to 25 years was carried out at the Yaoundé General Hospital between January 1993 and December 2012. The Results suggests that Adolescent deliveries represented 2.84% (331 deliveries) of all deliveries registered during the study period. The adolescent mothers had a significantly higher incidence of preeclampsia/eclampsia, preterm delivery and low birth weight babies (<2500 g) when compared to the control group (OR, 3.46; CI 95%, 1.46 - 8.18; OR, 1.94 CI 95%, 1.34 - 2.79; OR, 1.98, CI 95%, 1.39 - 2.46, respectively). However, placenta previa, abruptio placenta, episiotomy, cesarean section, vaginal

instrumental delivery, perineal tears and post partum hemorrhage were not significantly different in the two groups. Furthermore, there was no statistically significant difference between the two groups regarding fetal distress, low Apgar score (< 7 at the 1st and 5th minutes), the rate of admission in the neonatal intensive care unit, stillbirth and neonatal death.

Tebeu, Kemfang, Sandjong, Kongnyuy, Halle and Doh (2010) determined the frequency and the trend of adolescents (10–19 years) in childbirth within a period of 3 years in referral maternity units in Cameroon. The study employed descriptive and retrospective study for a 3-year period (2003–2005) in referral maternity units headed by a qualified Obstetrician-Gynecologist. They analyzed the trend and geographic distribution of 8222 adolescent deliveries over 3 years. Epi Info 3.5 software was used for data analysis. Chi square test for trend was used to assess the contribution of adolescent deliveries over years. The trend was considered significant if p<0.05. The results show that during the period of the study, there was a total of 8387 deliveries. Overall, the contribution of adolescents to deliveries ranged from 6.87% to 26.51%, depending on the region with a national mean of 14.23%. Adolescents aged 16 or less contributed to 2.82% of deliveries while those aged from 17 to 19 contributed to 11.41%. The contribution of adolescents to deliveries decreased significantly over 3 years (p<0.0001).

The relative sensitivity to inequalities in health care utilizations have caused several others to examine the trend of our health care. Interestingly, several studies have shown that emerging countries have found that the delivery of public health services is unequal. For example Okojie, (1994), examines gender inequalities of health in third world countries, according to Okojie gender inequality in health is one of the social dimensions in which gender inequality is manifested in the third world societies. His findings strategize ways to, eradicate gender inequalities in health through involving efforts of women to improve their status. The findings were also in tone with the findings of Chukuezi, (2010), which showed

that socio-economic and cultural factors and indeed gender discrimination contribute to high maternal mortality and morbidity in rural Nigeria.

Use of maternal health care in most African countries has been associated with several socioeconomic, cultural and demographic factors, although contextual analyses of the latter are few. Similarly, previous study in Kano showed that 64% of women with severe obstetric morbidity identified at different hospitals in Kano state Nigeria were in critical conditions upon arrival, underscoring the significance of pre-hospital barriers in this setting with free and accessible maternal health care. This cross-sectional descriptive study explored knowledge and Utilization of maternal health services among Urban and Rural reproductive women. The views of (n=1000) married women within the age group of 14 to 49years were selected randomly both in urban and rural areas. In a two point scale (good, poor), Knowledge of maternal health facilities and services generally show that urban and rural had extremely good knowledge of maternal health service and programs provided by the government with 99.0% of urban and 82.4% of rural. While overall, only 63.4% and 51.4% both urban and rural utilize health facilities and its programs. There was a statistically significant association between the respondent' level of education, income, age and their knowledge score (p = 0.005) for both urban and rural: knowledge of maternal health facilities was higher among those with formal education, high income and younger respondents (Yar'zever and Said 2013)

This study examined the determinants of maternal services utilization in Nigeria, with a focus on individual, household, community and state-level factors. Data from the 2005 National HIV/AIDS and Reproductive Health Survey - an interviewer-administered nationally representative survey - were analyzed to identify individual, household and community factors that were significantly associated with utilization of maternal care services among 2148 women who had a baby during the five years preceding the survey. In view of the nested nature of the data, we used multilevel

analytic methods and assessed state-level random effects. Approximately three-fifths (60.3%) of the mothers used antenatal services at least once during their most recent pregnancy, while 43.5% had skilled attendants at delivery and 41.2% received postnatal care. There are commonalities and differences in the predictors of the three indicators of maternal health service utilization. Education is the only individual-level variable that is consistently a significant predictor of service utilization, while socio-economic level is a consistent significant predictor at the household level. At the community level, urban residence and community media saturation are consistently strong predictors. In contrast, some factors are significant in predicting one or more of the indicators of use but not for all. These inconsistent predictors include some individual level variables (the woman's age at the birth of the last child, ethnicity, the notion of ideal family size, and approval of family planning), a community-level variable (prevalence of the small family norm in the community), and a state-level variable (ratio of PHC to the population) (Babalola and Fatusi, 2009)

Murray, Salomon and Mathers (2000) also supported the scenario as the existence of the variations in health status across individuals in a population. Interestingly, poverty is the most important determinant of inequalities in health, followed by income which depends on access to employment, which in turn is often influenced by educational level. Other examples in this category are housing quality, access to health care and working conditions (Crombie, Irvine, Elliott and Wallace, 2005).

Furthermore, Hassan (2012) investigated the awareness of women during pregnancy and its relation with socioeconomic factors. Overall, about half of the participants had moderate level of nutritional awareness. Education appears to be an important factor correlated with awareness. However, the majority of pregnant women didn't gain weight to the extent required, positive correlations were found between nutritional awareness and mother's & father's education. A negative correlation between women's nutritional awareness and number of abortions was found.

Meanwhile, Ajiboye and Adeboye (2012) examined the socio-cultural factors affecting pregnancy outcome among the Ogu speaking people of Badagry area of Lagos State, Nigeria. The study found positive relationship between socio-cultural factors and pregnancy outcome among Ogu speaking people of Badagry of Lagos State, Nigeria. Morrison et al., (1989) examined a prospective cohort of 8556 pregnant women attending the Mater Misericordiae Mothers' Hospital in Brisbane to consider the impact of socioeconomic status on pregnancy outcome. The findings suggest that observed class differences in pregnancy outcome are attributable to the mother's personal characteristics (height/weight parity) and her lifestyle.

According to the National Demographic and Health Report (2008), the proportion of women residing in urban areas who obtained antenatal Care services from a skilled health worker is 84%, higher than among women residing in rural areas where only 46% get these services. Educational status, another important socio-economic population factor also seems to influence the uptake of Antenatal care services among women as 97 percent of women with more than secondary education received antenatal care services from a skilled health worker, compared with 31 percent of women with no education. Similarly, women in the higher wealth quintiles were found to be more likely than women in the lower wealth quintiles to deliver in a health facility as the survey revealed that about 79% of women in the upper wealth quintile delivered in a health facility compared to 7.3% of those in the lowest wealth quintile. Obermeyer and Potter (2012), employed data from the Jordan fertility and family health Survey of 1983, to analyze maternal healthcare utilization in Jordan. The findings show that the poor and uneducated need little convincing of the benefits of modern medicine, most often, they do not utilize modern treatments because services are inaccessible.

The study by Ellencweig and Palgliccia (1994) however, appears to agree with the study done by Obermeyer and Potter (2012). Even though,

their aim was to identify a model that takes into account the interrelationship of health services utilization variables, and that allows examination of the utilization patterns of health services for a cohort of elderly clients. That allows time frame for the utilization variables is one year before and one year after admission to the long-term care program in BC which occurred in 1981-1982. Interestingly, the result showed that males and females have different utilization patterns, while age has no effect on utilization of health services by male clients and only a small effect on utilization patterns by female clients. However, showing that, there is significantly less acute care hospital services utilization.

According to Suhrcke, McKee, Sauto, Tsolova and Mortensen (2005) he revealed that people with lower levels of education, occupation and/or income tend to have higher morbidity and mortality rates and indeed, this is one of the main challenges for public health in Europe. Also, Mackenbach and Kunst (1997) adopted an epidemiological or public health view to provide a workable exploration on health inequalities: And to them it is the differences in the prevalence or incidence of health problems between individual people of higher and lower socio-economic status.

4. Research Methodology

4.1 Research Design
The study employed a cross sectional survey design. The method entails a situation whereby the researcher selects representative samples of individuals within the various specified stages of development and studies the samples at the same time in order to ascertain the problems and attributes exhibited by the various representative samples at the various stages of development. This research design was adopted because it enabled the researcher to gather a wide range of information on the study.

4.2 Area of the Study
The study was carried out in English speaking Cameroon for ease of comprehension and interpretation of the survey instruments. There exist two major regions in English speaking Cameroon: North West and South West

regions. Of these two regions, North West has a higher fertility rate which is evident in the fact that, 6.5% the proportion of women between 15 and 19 years old were pregnant in the North West of Cameroon as against 4.5% in the South West of Cameroon (WHO, 2008). Furthermore the Demographic Health Survey (2011) shows that 73.07% of households in the North West have at least a child as against 69.01% in the South West region. The study area is therefore located in the North West Region of Cameroon. Cameroon has distinct regional cultural, religious, and political traditions as well as ethnic variety.

The division of the country into British- and French-ruled League of Nations mandates after World War I created Anglophone and Francophone regions. The English-speaking region consists of the Southwest and Northwest regions while the other eight are French speaking regions. Polygyny and fertility are important cultural values, although this varies by wealth and education among the English speaking regions. The North-West region of Cameroon is one of the most densely populated regions of the country (100-250 individuals/km. It has one major metropolitan city, Bamenda which is the capital, with several other smaller towns such as Wum, Kumbo, Mbengwi, Ndop, Nkambé, Batibo, Bambui and Oshie. The Region has seven divisions or departments: Bui, Donga-Mantung, Menchum, Mezam, Boyo, Ngo-ketunjia and Momo. (Wikipedia, 2016).

4.3 Population of the Study
The study population comprised women aged 15-49 years in North West Region because this age bracket represents women of reproductive age as defined by WHO (2008). Eligible participants included all expectant mothers in North West Region of Cameroon. Unfortunately, there exist no verifiable statistics on the number of expectant women between the ages of 15 and 49 years in that part area. Nevertheless, according to the National Institute of Statistics, the North West Region has a total population of 1,728,953 which comprises of 728768 males and 1,000,185 females. Of the 1,000,185 females, Donga Mantung has 141,693, Mezam has 269,507 and Boyo Division has 68,375 and these were

employed as the target population for this study. More particularly, the population for the interested communities were; 25,300 for Fundong, 33,678 for Nkambe and 164,587 for Bamenda city according to the 2005 National Population Census.

4.4 Scope of the Study

The scope of this study was limited to expectant mothers between the ages 15-49 years who were in Fundong in Boyo Division, Bamenda City in Mezam Division and Nkambe in Donga Mantung Division. The study examined the socio economic status of Expectant Mothers and Access to Modern Health Services in North West Region of Cameroon.

4.5. Sample Size:

A sample size of 384 respondents was used to generate quantitative data for this study. The sample size was statistically estimated and generated using Fisher's population proportion formula as follows:

$$n = \frac{Z^2(PQ)}{d^2}$$

Where n= required sample size

z= confidence level expressed in standard deviation usually set at (95% or 1.96)

p= the proportion in the target population estimated to have a particular characteristic

q= compliment of p

d= degree of accuracy (0.05)

Therefore,

Z=1.96

P=target population/total population*100 but since the proportion in the target population estimated to have the particular characteristic we were looking for was not known, we therefore assumed our p=0.5 according to Fisher's formula.

Therefore p= 0.5, Q=0.5 and D=0.05

Therefore, the sample size was calculated thus:

$$n = \frac{Z^2(PQ)}{d^2} = \frac{1.96^2(0.5)(0.5)}{(0.05)^2} = 384.16$$

This is how the sample size of 384 was arrived at.

A Focus Group Discussion was held in each of the selected communities consisting of 6 pregnant women, who were selected at random during antenatal sessions

4.6 Sampling Techniques

Random sampling technique was used to select a sample for the study. Expectant mothers were randomly sampled during antenatal sessions. The multi stage sampling method was used to further select the smaller units of the sample for the study. Cluster, simple random sampling and systematic sampling method was used to select sample for the study. This particular technique was chosen because it gave each element of the population an equal chance of being included in the study (sample), with this method every element stood an equal chance of being represented.

In carrying out the sampling method, first North West Region was clustered into three (3) Divisions. Then using the balloting method of simple random sampling technique, three clusters were selected in which Donga Mantung, Boyo and Mezam Divisions were selected. The selected Divisions were numbered and then with application of the simple random sampling technique, three towns were selected namely Fundong, Bamenda and Nkambe. Furthermore, the communities in the three towns selected were numbered and through the aid of simple random sampling technique, one community was selected from each of them. Fundong town was selected from Fundong, Nkambe central from Nkambe, while Bamenda city was selected from Bamenda. . The number of questionnaires to be gotten from each of the communities was a representation of the female population of the three regions. The sum of females in Fundong town, Nkambe town and Bamenda city was equal to 223,655 (25300+33768+164587), implying that Fundong town was 11.31%, Nkambe town was 15.1% and Bamenda city was 73.59%. Therefore, the same ratios were used to get the proportion of questionnaires from each region: 43 questionnaires for Fundong town, 58 for Nkambe town and 283 from Bamenda city. The health centres visited in Bamenda were Cameroon Baptist Convention Health Centre, St Louis Clinic and Bamenda regional hospital; those visited in Nkambe were Government Hospital Nkambe, Government Health Centre

Binka and Presbyterian Health Centre Nkambe; and the government district hospital Fundong in Fundong (Being the only health centre). This was how the researcher generated data for the study. The participants for focus Group Discussion were randomly selected among the available pregnant women.

4.7 Instrumenst of Data Collection

The questionnaire schedule and a focus group discussion (FGD) guide were the major instruments for data collection for this study. The questionnaire was divided into six sections. Section A was the identification, section B comprised the socio demographic characteristics of respondents, section C was focused on health expenditure, Section D concentrated on access to healthcare, Section E looked at the challenges faced in accessing healthcare delivery system while section F looked at the suggested measures to improve access to modern health services. The questionnaire items were arranged thematically in line with the research objectives, it had both close-ended and open-ended questions. The responses from the Focus Group Discussion were carefully integrated with those of the questionnaire to give the study a reliable and valid result.

4.8 Administration of Instruments

The researcher adopted self and other administrators for the questionnaire. The researcher also employed the services of two research assistants who were trained by the researcher for three days on the objectives of the study. The two research assistants were graduates resident in North West Region. They assisted the researcher to ensure that the exercise was fast and less cumbersome. They also ensured that the return rate was high and that the necessary data were provided and also to clarified any ambiguity to respondents on any questions. The FGD was conducted by the researcher and two research assistants. The researcher personally moderated the discussion while one of the research assistants did the recording and the other, an observer. Field note books and a tape was provided to record responses from the interviewees, this was to ensure that no information was lost.

4.9 Method of Data Analysis

A Logit regression was used to predict relationships between variables in the study and access to modern health care services. The logit model therefore measured the relationship between the socio economic and demographic characteristics of expectant mothers in North West Cameroon and access to modern health care services. The studyused age, education and occupation to capture the second, third and fourth objectives, while the other explanatory variables acted as controls (which equally influenced accessibility) in order to boost the robustness of the model. The dependable variable was therefore access to modern health services (amhc) wherein 1 represented respondents that accessed modern health care and 0 for those who did not. The logit model was specified as:

$$\text{Logit}(amhc) = \ln\left[\frac{p}{1-p}\right] = \beta_0 + \beta_1 age + \beta_2 educ + \beta_3 occup + \beta_4 hhexp + \beta_5 exppreg + \beta_6 accsub + \beta_7 nochld + \beta_8 noofwk + \beta_9 marstat + \mu$$

Where β_0 was the intercept or constant term, β_i (i = 1 to 9) were the coefficients of the explanatory variable and μ was the error term. Meanwhile, educ represented educational level, occup for occupation, hhexp for household expenditure, exppreg for expenditure on pregnancy, accsub for access to subsidy, nochld for number of children, noofwk for number of weeks and marstat for marital status. p represented the probability of succeeding which in this case was the probability of accessing MHC. The odds ratio and marginal effects were employed for ease of interpretation as an alternative to the ambiguous log likelihood interpretation.

5. Data Presentation and Analysis

The study employed a logit regression model to examine the effect of expenditure, age, educational level and occupational level on access to modern health care. The choice of a logit model regression is because it deals with dependent variables that are binary in nature, as in this case. The dependent variable- access to modern health care is assigned 1 for those who accessed and 0 otherwise. Meanwhile the key

explanatory variables include the variable being investigated; age, educational level and occupational level (dummy wherein 1 represents if employed and 0 otherwise) as well as other controls that equally determine access to modern health care, which include; household expenditure, marital status (dummy wherein 1 represents married and 0 otherwise), number of children, number of weeks, expenditure on pregnancy, access to subsidy (dummy wherein 1 represents access to subsidy and 0 otherwise). The results of the logistic regression presented in terms of odds ratio as well as the marginal effects are presented below:

Table 1: Logit Estimation Results for the Determinants of Access to Modern HealthCare

Variables	Odds Ratio	Dy/dx	Z	Probability value
Age	0.6483519	-0.1044766	-2.65	0.008
Educational level	2.702519	0.2397041	5.48	0.000
Occupation	0.8305131	-0.0447762	-3.02	0.003
Household Expenditure	1.120556	0.0274438	3.27	0.001
Expenditure on Pregnancy	0.9463496	-0.0132954	-2.66	0.008
Access to subsidy	1.610011	0.1148246	3.20	0.001
Number of children	0.6722114	-0.0957632	-4.14	0.000
Number of weeks	1.289344	0.0612731	1.44	0.150
Marital Status	1.639862	0.1192541	1.39	0.164

Source: Field Survey 2016

The results show that household expenditure, access to subsidy, educational level, occupation, number of children, expenditure on pregnancy and age were significant determinants of access to MHC given that their probability values were less than 0.05 and their z values were greater than 2, hence significant at 5% significant level. On the other hand, marital status and the number of weeks of pregnancy were not significant, given that their z values were not greater than 2 and their probability values were not less than 0.05, hence not significant at 5% significant level.

The study further shows that age might not be significantly different between those who access MHC and those who do not, but it significantly affects access to MHC. Interestingly, it has a negative sign which connotes an inverse relationship with access to MHC and implies that the older the expectant mothers get, the less likely they are to access MHC. This finding is in tangent to the National Institute for Health and Clinical Excellence (2010) who posit that young pregnant women aged under 20 may feel uncomfortable using antenatal care services in which the majority of service users are in older age groups. It is however worth noting that National Institute for Health and Clinical Excellence (2010) referred to pregnant women under the age of 20, who may be shy about their status as they will likely not be married.

Educational level shows significant difference between expectant women who access MHC and those who do not and again has a significant and positive effect in determining access to MHC. This is expected a priori, given that education

increases the level of appreciation for MHC services and beyond this, it improves exposure. The finding on education is in accordance with those of the National Demographic and Health Report (2008) which report that education, level of wealth are more likely to determine deliver in a health facility and Obermeyer and Potter (2012), who employed data from the Jordan fertility and family health Survey of 1983, to analyze maternal healthcare utilization in Jordan and the findings show that the poor and uneducated need little convincing of the benefits of modern medicine, most often, they do not utilize modern treatments because services are inaccessible. Education is therefore a reliable and fundamental tool in improving access to MHC.

Occupation equally was significant in determining access to MHC as expected. Occupation is not only related to income which equally is a significant factor, it might also determine the level of exposure as well as appreciation of MHC. On this premise, it is therefore expected that occupation be a significant determinant of MHC. Lauria et al., (2013) equally used logistic regression to show that education and employment status affect antenatal and postnatal care indicators in Italy.

The results equally show that there is a significant difference in terms of marital status between those who access and those who do not, though this difference is not strong enough to show a significant impact on access to MHC. Nevertheless, it is worth noting that those who were single are more likely to access MHC which refers to the class of expectant mothers who are relatively younger. On the other hand, the divorced were less likely to access MHC. As for religion, showed a significant difference between expectant mothers who accessed MHC and those who do not, emphasizing the fact that Christians were more likely to access modern health care than muslims and traditionalists.

The findings suggest that as household expenditure increases the odds in favour of accessing modern health care increases significantly by a marginal effect of 0.0274438. Hence, it could be said that wealthier expectant mothers are more likely to access MHC than the poorer ones. Meanwhile, there exist a significant negative relationship between the odds in favour of accessing MHC and expenditure on pregnancy. Which is equally expected a priori, given that expectant mothers will shy away from MHC if their bills get too high. Interestingly, the expectant mothers who accessed subsidy had significantly higher odds in favour of accessing MHC when compared to their counterparts who did not access subsidy. Access to MHC will therefore improve if the cost on the said MHC is reduced, hence the inverse relationship. This situation is even made worst when out of pocket is high as is the case with this sample. Out of pocket for the sample is about 81% which shows that the expectant mothers bear the brunt of the antenatal cost and so need support/subsidy. Unfortunately, only 21.61% of the sample receive subsidy, which further makes it difficult to access MHC in North West Cameroon. Nevertheless, Rashad and Sharafthe (2015) posit that the effect of the subsidies on income distribution depends on the distribution of the subsidization benefits across different economic classes. It is therefore important to ascertain that subsidy is pro-poor; paid to those who need it most or else the effect on improving access to MHC especially by those who want to but cannot afford will be nullified. Conscious efforts need to be done, given that only 24.6% equally have access to insurance as against 75.4% who do not. Especially because expectant mothers perceive that insurance is very effective in accessing modern health care.

6. Conclusion

Under 5 and infant mortality has remained a critical problem in developing countries and Cameroon in particular. It is therefore a priority for government to minimize the under 5 and infant mortality rates by ensuring that expectant mothers receive the best care possible. Health care services for expectant mothers are at an advanced stage; correcting several mistakes to what we refer to as modern health care services. Access to modern health care for expectant mothers remains challenging in the traditional society of Northwest Cameroon and is on this premise that the study examined the socio economic status of expectant mothers and access to modern health services in North West region

of Cameroon. The study analysed primary data and showed that age, educational level and occupation were significant determinants of access to modern health care services. The study recommends the need for the government to step in as the regulating body and put in place measures that parents send their female children to school beyond any traditional, cultural or societal believes. Also, civil society groups could seek for forums such as religious and cultural meetings in an effort to emphasize the need and accessibility of modern health care services. The study shows that younger expectant mothers are more likely to access modern health care services than their older counterparts, hence the need for more sensitization and educational programs for older expectant mothers. Finally, the study recommends that there is need to motivate women to earn income either by getting a paid job or being entrepreneurial.

References

Ajiboye A. & Adeboye (2012). Socio-cultural factors affecting pregnancy outcome among the Ogu speaking people of Badagry area of Lagos State, Nigeria. *International Journal of Humanities and Social Science,* 2(4): 133-145.

Akukwe C., (2008). *Health services in Africa: overcoming challenges, improving outcomes*. Adonis & Abbey Publishers.

Andersen A. S. & Laake, P. (1987). A model for physician utilization within 2 weeks. Analysis of Norwegian data. *Med Care* 25: 300-310.

Babalola S. & Fatusi A. (2009). Determinants of use of maternal health services in Nigeria: looking beyond individual and household factors. *BMC Pregnancy Childbirth* 9:43.

Chukuezi, C (2010). Socio-cultural Factors Associated with Maternal Mortality in Nigeria. *Research Journal of Social Sciences,* 1(5): 22-26

Cockerham, W. C. & Scambler, G. (2010). *Medical Sociology and Sociological Theory. In Cockerham C.W. (Ed) Medical Sociology*. USA: Wiley-Blackwell.

Crombie I., K., Irvine L., Elliott L, & Wallace H. (2005). *Closing the Health Inequalities Gap: An International Perspective.* The Regional Office for Europe for the World Health Organisation: Copenhagen. http://www.who.int/social_determinants/re sources/closing_h_ inequalities_gap.pdf.

Davis, K. & W. Moore (1967). Some Principles of Stratification. *American Sociological Review*, 10: 242-249.

Demographic and Health Survey (2004). *DHS Final Report Cameroon 2004*. Institut National de la Statistique, Ministère de la Planification, de la Programmation du Développement et de l'Aménagement du Territoire, Yaoundé, Cameroun and ORC Macro, Calverton, Maryland, USA.

Demographic Health Survey (2011). *Cameroon 2011 DHS Final Report.* Retrieved from: http://dhsprogram.com/what-we-do/survey/survey-display-337.cfm

Edie G. E. H. E., Obinchemti T. E., Tamufor E. N., Njie M. M., Njamen T. N. & Achidi E. A. (2015). Perceptions of antenatal care services by pregnant women attending government health centres in the Buea Health District, Cameroon: a cross sectional study. *The Pan African Medical Journal*, 21(45).

Ellencweig A. Y. & Pagliccia N. (1994). Utilization patterns of cohorts of elderly clients: a structural equation model. *Journal of Health Service Res, 29(2): 225– 245*. PMC1070000

Evans, R.G., Barer, M. L. & Marmor, T.R., (1994). *Why Are Some People Healthy and Others Not? The Determinants of Health of Populations*. New York: Aldine De Gruyter.

Global Living, (2014). *Teen Mother Empowerment in Cameroon*. Retrieved from: http://www.globalgiving.org/projects/teen-mother-empowerment-in-cameroon/

Good Governance in Africa, (2016). *Government Performance Index*. Retrieved from http://www.gga.org

Hassan M. I. (2012). Relationship between Socio-economic Characteristics, Health Status and Nutritional Awareness of Pregnant Women. Conference on

Managing Knowledge and intellectual capital in Higher Education institutions in Egypt and Arab World held 11-12 April 2012. Faculty of Specific Education - Mansoura University.

Huston A. L. (2001). *Carilion: A Corporate System of Managed Health Care.* A PHD Dissertation submitted to the faculty of the Virginia Polytechnic Institute and State University.

Illsley, R. (1983). Social aspects of pregnancy outcome. In Obstetrical Epidemiology (Barron, S. L. & Thomson, A. M., eds), *Academic Press, London,* pp.449-476.

Institute, National de la Statistique, (2011). 4ème Enquête Démographique et de Santé et à Indicateurs Multiples EDS-MICS 4. Yaoundé: Institut National de la Statistique.

Lauria L., Bonciani M, Spinelli A, & Grandolfo M. E. (2013). Inequalities in maternal care in Italy: the role of socioeconomic and migrant status. *Ann Ist Super Sanita,* 49(2): 209-18. DOI: 10.4415/ANN_13_02_12.

Mackenbach, J.P. & Kunst, A.E. (1997). Measuring the magnitude of socio-economic inequalities in health: an overview of available measures illustrated with two examples from Europe. *Social Science Medicine*, 44: 757-771.

Macq J., Ferrhino P., De Brouwere V. & Van Lerberghe W. (2001). Managing Health Services in Developing Countries: Between the Ethics of the Civil Servant and the Needfor Moonlighting: Managing and Moonlighting. *Human Resources for Health Development Journal,* 5(3): 17-25.

Malter J., (2014). In Cameroon, 63% of women who want to avoid pregnancy do not use a modern method of contraception. Gutmatcher institute media center. Retrieved from: http://www.guttmacher.org/media/nr/2014/07/29/en.html

Morrison J., Najman J. M., Williams G. M., Keeping J. D. & Andersen M. J., (1989). Socio-Economic Status and Pregnancy Outcome: An Australian Study. *British Journal of Obstetrics and Gynaecology,* 96 (3): 298-307.

Murray, C.J.L., Salomon, J.A., & Mathers, C., (2000). A critical examination of summary measures of population health. *Bulletin of the World Health Organization*, 78(8): 981-994.

National Institute for Health and Clinical Excellence. (2010). Pregnancy and Complex Social Fcators. *NICE Clinical Guideline.*

Ndenecho E. N. (2009). NGO Input and Stakeholder Participation in Natural Resource Management: Example of North West Cameroon. *International NGO Journal.*

Ngowa J. D. K., Kasia J. M., Pisoh W. D., Ngassam A. & Noa C. (2015). Obstetrical and Perinatal Outcomes of Adolescent Pregnancies in Cameroon: A Retrospective Cohort Study at the Yaoundé General Hospital. *Open Journal of Obstetrics and Gynecology,* 5, 88-93.

Obermeyer C.M & Potter J.E (2012). Maternal Healthcare Utilization in Jordan: *A study of patterns and Development Studies in family planning, 22 (3): 177-187*

Okojie C. E. (1994). Gender Inequalities of Health in the Third World. *Social Science Medicine, 39 (9):1237-47.*

Organisation for Economic Co-operation and Development (2013). *Health at a Glance 2013 - OECD Indicators.* Retrieved from: http://www.oecd.org/health/health-systems/health-at-a-glance.htm.

Rashad A. S. & Sharafthe M. F. (2015). Who Benefits from Public Healthcare Subsidies in Egypt? *Social Science,* 4, 1162–1176; doi:10.3390/socsci4041162

Suhrcke M., McKee M., Sauto A. R., Tsolova S., & Mortensen J. (2005). The contribution of health to the economy in the European Union. EC.

Tebeu P. M. KemfangJ. D., SandjongD. I.,Kongnyuy E.,Halle G., and DohA. S. (2010). Geographic Distribution of Childbirth among Adolescents in Cameroon from 2003 to 2005. *Obstetrics and*

Gynecology International, 805165. http://dx.doi.org/10.1155/2010/805165.

WHO (2008). *Closing the Gap in a Generation: Health Equity through Action and the Social Determinants of Health.* Geneva. Retrieved from: http://whqlibdoc.who.int/publications /9789241563703. Retrieved, March 2012.

World Bank Indicators (2014). *Maternal mortality ratio (national estimate, per 100,000 live births).* Retrieved from: http://data.worldbank.org/indicator/SH.STA .MMRT.NE

World Health Organisation (2015). Countries: Cameroon. Retrieved from: http://www.who.int/countries/cmr/en.

World Health Organization (2016). Health Statistics and Information systems. URL: www.who.int/healthinfo/statistics/indmatern almortality/en.

Yar'zever I. S. & Said I. Y. (2013). Knowledge and Barriers In Utilization of Maternal Healthcare Services in Kano State, Northern Nigeria. *European Journal of Biology and Medical Science Research, 1:1-14*

Zadoroznyj M. (1999). Social class, social selves, and social control in child birth. *Social Health Illn*, 21:267-289.

APPENDICES

Table 2: Socio Demographic Characteristics

Description	Sub Groups	All women(n=384)	Access to MHC (n=295)	No Access to MHC (n=89)	Probability Value
Marital Status	Single	26.3	28.47	19.10	0.000
	Married	57.55	56.95	59.55	
	Divorced	4.43	1.02	15.73	
	Separated	7.29	7.80	5.62	
	Widowed	4.43	5.76	0.00	
Educational Qualification or Equivalent	No formal Education	15.63	15.93	14.61	0.000
	Primary/FSLC	28.91	22.37	50.56	
	GCE/WAEC	34.64	36.27	29.21	
	OND	7.81	9.49	2.25	
	HND/1st Degree	9.9	11.86	3.37	
	Post Graduate Degree	3.13	4.07	0.00	
Religion	Christian	55.73	63.05	31.46	0.000
	Muslim	30.73	28.14	39.33	
	Traditional	13.54	8.81	29.21	
Occupation	Civil Servant	6.77	7.80	3.37	0.000
	Farmer	20.57	22.71	13.48	
	Business	21.61	21.69	21.35	
	Entrepreneur	7.81	8.14	6.74	
	Unemployed	9.64	10.85	5.62	
	Student	7.03	8.14	3.37	
	Housewife	19.53	13.22	40.45	
	Service related	7.03	7.46	5.62	
Location	Bamenda	73.70	79.78	71.86	0.13

Fundong	11.20	10.17	14.61
Nkambe	15.10	17.97	5.62

Source: Field Survey 2016

Table 3: Socio Economic and Demographic Description for Quantitative Data

Description	Overall (n=384)		Access to MHC (n=295)		No Access to MHC (n=89)		t - value
	Mean	**S.D.**	**Mean**	**S.D.**	**Mean**	**S.D.**	
Age	27.51	6.1355	27.6746	5.8701	26.9775	6.9527	0.9393
Household expenditure	47,728.39	54,234.05	50,868.47	60,481.42	37,320.22	20,924	2.0745
Expenditure on Pregnancy	26,780	23,243.25	27,222.03	23,190.32	25316.85	23,489.95	0.6773
Estimated Value of Subsidy	19,861.54	25,928.31	23086.96	33086.54	18095.24	21,283.01	-0.7395
Percentage of out of pocket	81%	25.72	82%	24.8481	79%	28.4581	0.9478
Distance in minutes	63.68	33.1329	61.97	32.80009	69.35	33.7808	0.8358
Distance in km	2.28	1.44	2.23	1.46	2.47	1.38	-1.4040
Number of Children	3	2.1029	3	2.0963	2	2.1287	0.8076
Frequency of antenatal visits/month	1.21	1.1479	1.23	1.15402	1.15	1.02676	0.9313

Source: Field Survey 2016

Table 4: Access to Modern Health Care

Description	Sub Groups	Overall (n=384)	Access to MHC (n=295)	No Access to MHC (n=89)	Probability Value
Perception of access to modern health care	Very Accessible	13.12	15.59	4.65	0.001
	Accessible	23.62	21.36	31.4	
	Average	50.66	52.54	44.19	
	Inaccessible	8.14	5.76	16.28	
	Very Inaccessible	4.46	4.75	3.49	
Access to Ultra Sound	Yes	57.03	72.54	0	0.000
	No	42.97	27.46	100	
Access to Dopler Fetal Monitor	Yes	40.36	52.54	0	0.000
	No	59.64	47.46	100	
Choice of Delivery Facility	Government Hospital	37.24	39.32	30.34	0.000
	Private hospital	29.17	33.56	14.61	
	Mid wife Centre	15.10	14.24	17.98	
	Traditional Practitioner	14.32	11.19	24.72	
	Home	4.17	1.69	12.36	
Reasons for preferred Choice of Delivery	Close to home	23.68	23.55	24.14	0.000
	Cheaper	29.47	29.69	28.74	
	Quick attention	2.37	2.39	2.30	
	Cleanliness	8.68	9.22	6.90	

Facility	Specialised	14.47	17.06	5.75	
	More Caring	12.89	13.99	9.20	
	Better Understanding	2.37	0	10.34	
	No Money	3.16	2.05	6.9	
	Tradition	1.84	0.68	5.75	
	Husband's request	1.05	1.37	0	
Medical Attendant	Specialist	15.36	15.25	15.73	0.167
	General Practitioner	17.19	17.97	14.61	
	Nurses	35.68	32.88	44.94	
	Midwives	31.77	33.90	24.72	

Source: Field Survey 2016

Table 5: Socio Economic Characteristics

Description	Sub Groups	Overall (n=384)	Access to MHC (n=295)	No Access to MHC (n=89)	Probability Value
Received Subsidy?	Received	21.61	30.34	18.98	0.023
	Did not Receive	78.39	69.66	81.02	
Agency that gave subsidy for those who received	Government	40	50	20	0.000
	Hospital	13.33	3.33	33.33	
	Private Company	6.67	3.33	13.33	
	NGO	32.22	35	26.67	
	Relatives	7.78	8.33	6.67	
Materials given as subsidy	Drugs	40.32	48.89	17.65	0.057
	Baby Clothes	16.13	17.78	11.76	
	Mosquito Nets	43.55	33.33	70.59	
Perception of Prenatal Health Care	Expensive	47.52	49.81	38.46	0.102
	Not Expensive	52.48	50.19	61.54	
Access to Insurance	Has Insurance	24.6	26.3	19.10	0.168
	Lacks Insurance	75.4	73.7	80.9	
Effectiveness of Health Insurance	Very Effective	11.11	10.59	13.04	0.002
	Effective	24.07	16.47	52.17	
	Average	30.56	35.29	13.04	
	Not Effective	25.93	30.59	8.7	
	Very Ineffective	8.33	7.06	13.04	

Source: Field Survey 2016