

CHILD MORTALITY COMBAT IN THE DEVELOPMENT OF BAFUT SUB-DIVISION, MEZAM DIVISION, NORTH WEST REGION, CAMEROON

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Abstract: *Mortality of children under the age of five has been the main target of public health policies worldwide. Bafut Sub-division found in the Northwest Region of Cameroon is characterised by high infant and child mortality confirmed by statistics gotten from the Bafut District Hospital and many other health centres in this locality. This study aims at examining the situation of child mortality and to outline the different factors associated with child mortality in Bafut Sub-division. The research methodology adopted for this study involved the use of quantitative and qualitative approaches. Data collected was from primary sources (field observation, administration of questionnaires, focus group discussions and interviews) and secondary sources (published and unpublished works, and the internet). The findings of the study reveal that, there is a downward movement in the mortality trend in Bafut Sub-division and Cameroon. Malaria is seen as the main cause of child mortality in Bafut. This is confirmed by the pearson's chi square, with the degree of freedom being 6 at a significant level of 0.05, the critical value was 5% while the calculated value measured at 614.8 which is validated, stating that, malaria is the main cause of child mortality in Bafut Sub-division. Results from our investigation also show that strategies put in place to combat child mortality have contributed so much on the reduction of child death which has led to the development of Bafut Sub-division. Considering the fact that the strategies adopted cannot fully solve the problem, there is therefore the need for all stakeholders to be actively involved in the implementation of the different adaptation strategies and the recommendations mentioned in this document such as free vaccination of children less than five year, provision of treated mosquito net, antenatal health education, free treatment of malaria for pregnant women and under five children, health campaigns and sensitization and availability of first aid boxes in schools*

Key words: child mortality; health; combating agents; strategies development.

1. Introduction

The right to health is a fundamental part of the Human Rights declaration of 1948 (United Nations High Commissioner for Human Rights, 2008). Improving child survival has been a priority for both policy makers and health advocates worldwide. One of these priorities is the development of the United Nations Sustainable Development Goals (UN SDGs) of which one of them calls for a reduction in infant and maternal mortality rates (Sustainable Development Goal 3). A health transition observed globally indicates that under-five mortality had declined by 1.8 per cent between 1990 and 2000 (UNICEF, 2012). This improvement has increased to 3.2 per cent between 2000 and 2011 signifying a significant progress in child survival. However, under-

five deaths remain high in the sub-Saharan Africa region where 1 in 9 children dies before the age of five (UNIGME, 2012).

Mortality of children under the age of five has been the main target of public health policies and is a common indicator of mortality levels, especially in developing countries (Gakusi and Garenne 2006). United Nations Demographic year-book in 1979 shows that a very rough estimate of the current infant mortality rate is about 100: fewer than 20 in most of the developed countries, below 10 in a few, and well over 100 in many Asian and African countries. These high rates, which are usually estimates, are averages. In some years, the rates are at least 200 to 250 (one child in four) in some geographic areas and among some ethnic groups. The worldwide variation is such that in Japan and Scandinavia, less than one child in a hundred dies in infancy.

It is also viewed as an indicator of the level of development, health and socioeconomic status of the population. Disparities in child health between and within countries have persisted and widened considerably during the last few decades (Bryce et al, 2006; Moser et al, 2005).

The reduction of these disparities is a key goal of most developing countries' public health policies, as outlined in the Sustainable Development Goals 2030 (Lawn et al, 2007). (Carvalho and Wood, 1978), explain that it is often difficult to know either current levels or the pace of decline in infant mortality in developing countries. Improvements in registration systems and surveys increase the number of deaths reported and can conceal a reduction in mortality, but where declines have recorded, they have been approximately as the same rate as in the developed countries. It is well recognized that disparities in child health outcomes may arise not only from differences in the characteristics of the families that children are born into but also from differences in the socio-economic attributes of the communities where they live (Fotso and Kuate-Defo, 2005; Griffiths et al, 2004; Kravdal, 2004; Ladusingh and Singh, 2006; Montgomery and Hewett, 2005; Robert, 1999; Sastry, 1996).

Gwatkin (1980) talked on an increase in the infant mortality rate from 43-48 which was reported from Sri Lanka after a period of decline that has lasted more than thirty years. Reliable time-series on mortality are generally not available for developing countries, but some analysts find that rates appear to be stabilizing at relatively high levels. Dyson (1977, p. 288), examines that estimates of child mortality suggest that when infant mortality is high, the risk of death may also be quite high in the second and third year of life. The risk is associated with the diarrhea and malnutrition that occurred so frequently when weaning foods are both inadequate and a source of infection. Estimated rates that are approximately 40 per 1000 children in tropical Africa are more than 40 times higher than rates in developed regions. Bafut sub-division is experiencing the same situation as children died every year due to malnutrition and infections. This is mostly seen in the lower areas of Bafut ("Mbouti").

The predominant causes of child deaths worldwide are diarrhea, pneumonia and malaria. Cause of death is defined as "disease or injury which initiated the train of morbid events leading directly to death" (International Classification of Diseases 2000). The renewed focus on underlying causes of death has led to the emergence of the buzz-phrase social determinants of health. Social determinants of health are the conditions in which people live, and that affect their opportunities to leave healthy lives (Labonté and Schrecker, 2007). Examples of social determinants of health are education, income, social status, physical environment and housing conditions, social support networks, genetics and gender, but also health systems and services (World Health Organization, 2011e). So far as Bafut is concern, malaria, diarrhea and pneumonia are the main causes of child death. Pneumonia is rampant during the first year of live (infant mortality).

Previous birth interval is correlated with child survival. There is a general thought that longer birth intervals improve the survival chance of the following children (Bhalotra and van Soest, 2008; Majumder et al, 1997; Davanzo and Habicht, 1986; Koenig et al, 1990; Pebley and Stupp, 1987; Murphy and Wang, 2001). Short preceding birth interval influences child mortality through three mechanisms. First, closely spaced births cause depletion of the mother. Second,

mechanism is through sibling competition and the third is transition of infectious diseases between the closely spaced children (Majumder et al, 1997).

The first one is the biological and the other two are behavioral effects of short preceding birth interval (Koenig et al, 1990). Maternal depletion occurs as a result of repeated and closely spaced pregnancies. Closely spaced pregnancies do not give the mother enough time to recover from the adverse physiologic and nutritional demands related to pregnancy (Koenig et al, 1990). The child who is born in such an environment suffers from low birth weight, short duration of gestation and growth retardation (Majumder et al, 1997). This mechanism is effective in the early stages of life (Koenig et al. 1990). This situation is very clear in Bafut as more than 50% of mothers that had more than two children have birth intervals that range from 1-2 years and about 45% of them had experienced history of child death.

Dyson (1977), the level of education of the mother has been a very strong prediction of infant and child mortality rates. As the education of mother increases, rates go down; this consistent finding is attributed in part to improvements in a mother's ability to provide care, including use of health services, and in part to the correlation of education with other indicators of living conditions and access to resources. Maternal education is an important determinant of infant and child mortality and is mostly used as a proxy for socio-economic status of mother. Less educated mothers are found to experience more child mortality (Murphy and Wang, 2001).

There are several explanations made for the ways which maternal education influences child health. More educated women adopt simple health knowledge contrary to fatalistic acceptance of health outcomes; they adopt alternatives in child care and recent treatments. They can feed their children and practice child care more appropriately. Educated women are more capable of handling modern world. Communication with doctors and nurses should be easier for educated women.

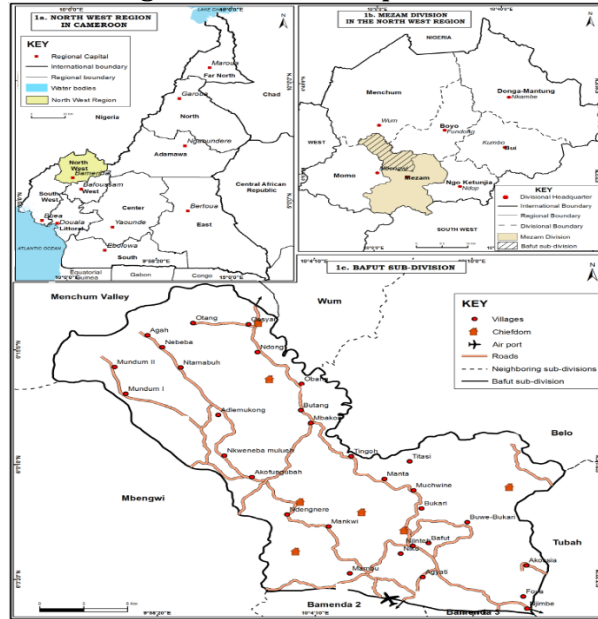
Educated women may change traditional balance of family relationships. In different countries, education may have an effect over child health through a different channel (Caldwell, 1979). Also educated mothers may use health inputs more productively and effectively, may have better information of best allocation of health inputs, may have more family resources in consequence of marrying wealthier men or working outside, and may have different preferences for child health.

In another study conducted by Hobcraft, the survival chances of children born to educated mothers are argued to be greater due to several demographic reasons. Educated mothers tend to marry and have children later and have fewer children; therefore the excess risk of infant mortality for teenage mothers is reduced. Also educated mothers experience lower maternal mortality and per birth maternal mortality because of greater usage of health services, avoiding risky pregnancies and of experiencing fewer pregnancies and children without mothers are less likely to survive (Hobcraft,1993). This confirms the situation in Bafut with about 55% of mothers who are class seven school dropouts which are exposed to the effects of child mortality

2. Regional Setting

Bafut is located in Mezam Division of the North West Region of the Republic of Cameroon. It is situated at about 20km from Bamenda town along the road to Wum in Menchum Division. Bafut lies between longitudes 10° 00' and 10° 13' East and latitudes 6° 05' and 6° 10' North of the equator. It covers a surface area of about 425km² of land and a population of over 123,362 (Census 2005). Bafut is situated in an elevated basin surrounded by the Oshie-Ngie range to the West and the Bamenda, Bansa, Oku and Njinikom high plateau to the East.

Figure 1: Location map of Bafut



Source: National Institute of Statistics, (2018).

3. Materials and Methods

3.1. Sampling design and techniques

The data collected from interviews, questionnaires and observations was analysed using Statistical Packages for Social Sciences (SPSS) 17.0 window version by Georgia. These data are presented in the form of tables, graphs, bar charts and histograms. The Chi Square correlation was used to evaluate, test and validate the association between dependent and independent variables. P value was set to be statistically significant at 0.05. We deemed this method appropriate to use because it provides relationship that might exist between dependent and independent variables given that they are qualitative information.

The targeted population consisted of women at childbearing age (16-45 years) who had once given birth, randomly selected from nine villages namely: Niko, Mambu, Obang, Manji, Mundum II, Akofunguba, Njinteh, Tingoh and Akossia. This population was chosen because it provided easy accessibility to work with. In each village, a sample size was chosen with respect to the population of that village, which ranges from twenty to twenty-five women making a total of two hundred women (200 questionnaires). To get the sample size of the questionnaire, the following formula will be use. Sample size of questionnaire=number of questionnaires administered in each village divided by the total number of questionnaires multiply by 100. For instance, Niko will be calculated as follows: $Niko \frac{25}{200} \times 100 = 12.5$.

Table 1: Sample size of questionnaire in Bafut Sub-division

Village	Number of questionnaires	% of questionnaire
Niko	25	12.5
Tingoh	20	10
Akofunguba	20	10
Obang	20	10
Mundum II	20	10
Mambu	25	12.5

Manji	25	12.5
Akossia	25	12.5
Njinteh	20	10
Total	200	100

Source: conceived by the author (2018)

The simple random sampling and the cluster sampling techniques were used to realise this work. The simple random sampling technique was used in selecting the villages mentioned above to interview child bearing mothers using questionnaires. This sample technique was used to avoid bias while the cluster sample technique was used in hospitals and health centres where women gathered for antenatal lectures. The descriptive method was chosen because it was easier to read and understand qualitative and quantitative data collected from primary and secondary sources to show the evolution of child mortality.

4. Findings

4.1. Trends and levels of child mortality in Bafut Sub-division

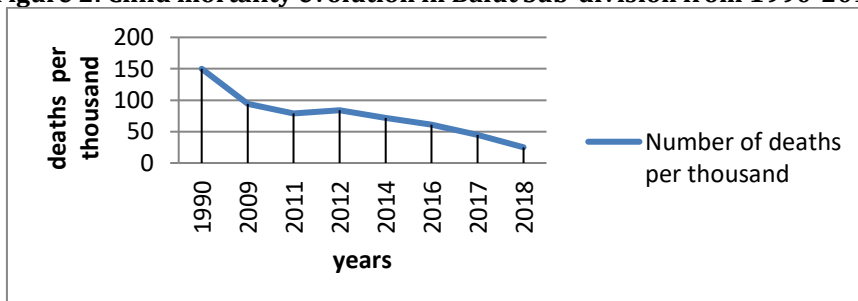
Bafut Sub-division is characterized by high infant and child mortality rates as compared to some rural areas of Cameroon (Bafut District Hospital, 2008). Statistics gotten from the different DHS/MICS and interviews of health personnel show that, between the 1980s and 1990s, child mortality rates were very high (150 deaths per 1000 live births) but have taken a regressive turn around as the situation is now better. The high child mortality rates within these periods were due largely to the lack of health facilities in many areas in Bafut Sub-division. Mundum is a good example where no health facilities existed and a host of many far-off villages until three years ago that one health center was created in Mundum II. In these health centers, there is an acute shortage of trained personnels and some important health equipments. Accessibility is also a great problem especially when it came to the transportation of pregnant women in labour to the nearest hospital. This is seen in many far off villages such as: Akofunguba, Agah, Otang, Bukari, Titasi, Ademukong, Acheini, where pregnant women brave unfavorable conditions, long distances through bad roads before getting to the nearest health center or hospital. Obsolete traditional methods and traditional doctors that do not have any medical experience deliver women under very unhygienic conditions thereby causing high child mortality. The low literacy rate of women and poverty also contributed much to child mortality in Bafut.

Table 2: Trends in child mortality in Bafut Sub-division from 1990-2015

Years	1990	2009	2011	2012	2014	2016	2017	2018
Numbers	150	94	79	84	72	61	45	25

Source: Bafut health district, 2018.

Figure 2: Child mortality evolution in Bafut Sub-division from 1990-2018



Source: Fieldwork statistics (2018).

The reduction in trends of child mortality in Bafut Sub-division is as a result of the creation of more qualified health facilities equipped with recent health technology and highly qualified health personnel combined with the efforts of funding institutions like; PLAN Cameroon, the ministry of health, international organizations like WHO, UNICEF and financial institutions like; The World Bank and the Bafut Cooperative Credit Union. Diplomatic assistance provided through the embassies and consulates of many countries like the UK, USA, and Japan. We cannot minimize the efforts of the local community health workers in combating this phenomenon as they sensitize the public through village meetings and seeking financial contributions through fun raisings towards the wiping away of this situation. The church plays a very important participatory role in combating this social ill through its health facilities like the Presbyterian Mission Health Services, the Catholic Mission Health Services and the Baptist Mission Health Services.

4.2. Causes of child mortality in Bafut Sub-division

Most of the women in Bafut confirmed that they had experienced history of child death. 78 out of 200 respondents have lost at least a child making 39%. This percentage is relatively high. This shows that out of 20 women questioned at least 7 of them have experienced child death. 122 of this population confirmed not to experience it.

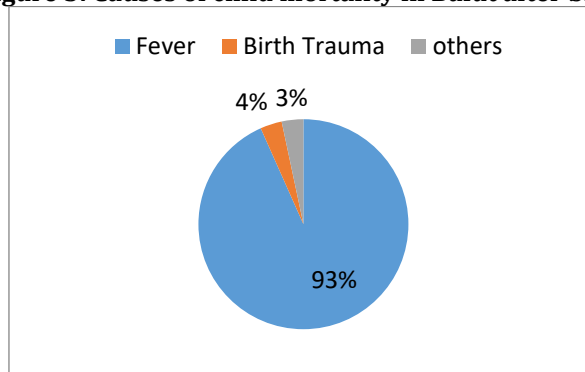
Table 3: Percentage of child mortality in Bafut
Question: have you experienced child mortality?

Response	Respondents	%
Yes	78	39
No	122	61
Total	200	100

Source: Fieldwork 2018

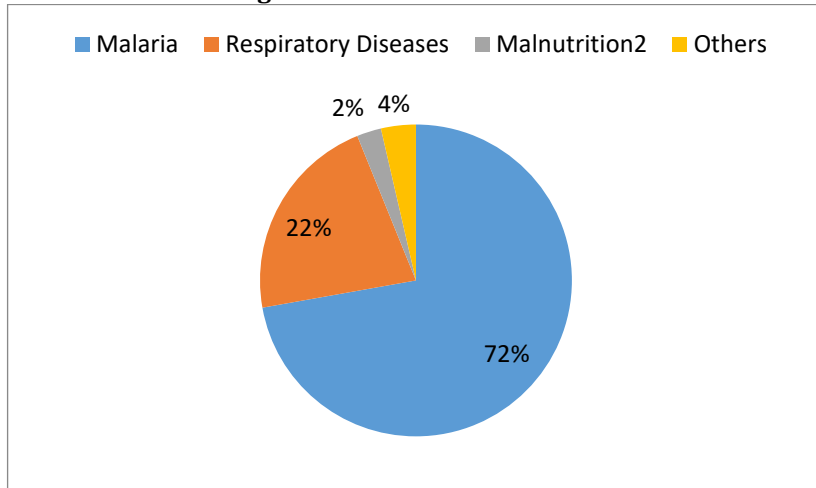
Out of the 78 children that died, 50 were normal when they were being given birth to and 28 were not normal making 64.1% and 35.9% respectively. 2.56% died before the date of birth, 20.52% died during birth and 76.92% died after birth. Most of the deaths that occurred during birth were caused by prolong labour and birth trauma which falls under neonatal deaths mean while 93% of children who died after birth was due to fever and 72% of the fever infection died because of malaria infection, 22% was respiratory infection, 2% was as a result of malnutrition and 4% for other illnesses. (Figures 3 and 4). It was also realized that, 66.67% of the deaths are male and 33.33% female. This shows that the male child is more likely to die than the female child.

Figure 3: Causes of child mortality in Bafut after birth



Source: Field work statistics, 2018

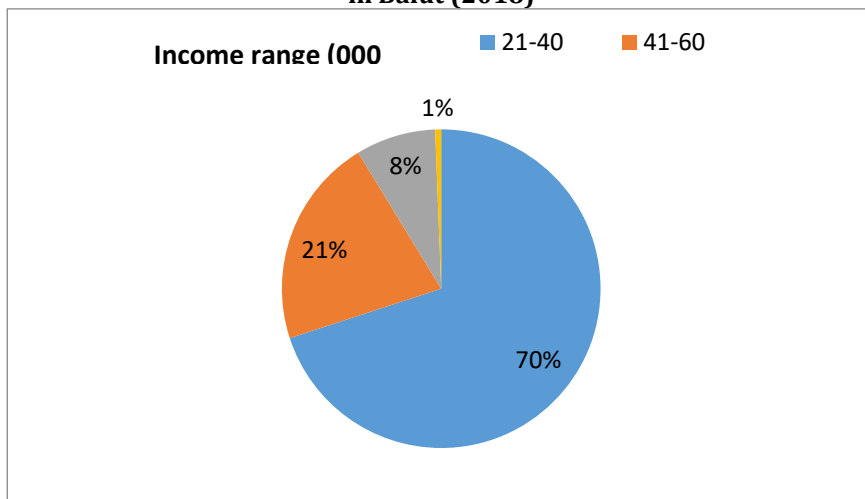
Figure 4: Causes of child fever



Source: Field statistics, 2018

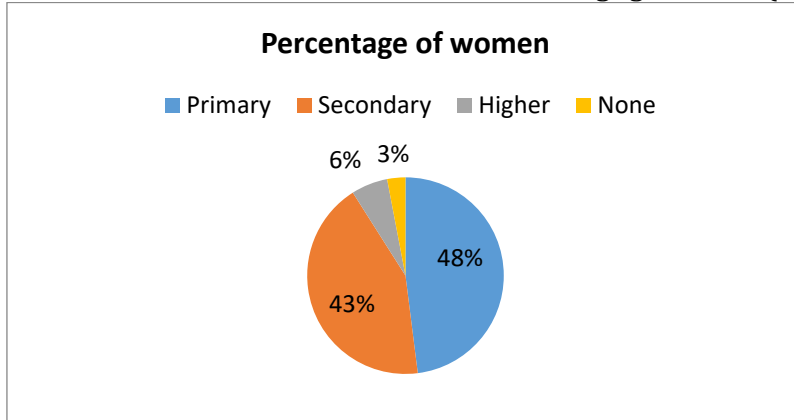
Table 5 below shows that, 70% of mothers at child bearing age have income that ranges from 21000-40,000 CFA per month. The mortality rate reduces as income levels of the mothers improve thereby making low income levels or poverty to influence child mortality amongst women negatively. Figure 6 shows that, the number of women who attended primary education was 96 making a total of 48%, secondary school was 86 making 43%, only 12 women succeeded to attain higher education making 6% and 6 making 3% did not even go to school.

Figure 5: Average monthly income distribution per women at child bearing age in Bafut (2018)



Source: Field work statistics, 2018

Figure 6: Educational level of women at child bearing age in Bafut (2018)



Source: Field work statistics, 2018

It was evident that low levels of education amongst child bearing mothers greatly influenced the rate of child mortality in Bafut.

Most of the roads in Bafut are not tarred and are seasonal. During the raining season, some of these roads like the road leading to Mundum II, Akossia, Ndung just to name a few are not motorable and this causes mothers to trek for very long distances to go to health centres and hospitals for antenatal check-ups since these health services are unevenly distributed in the area. Fieldwork shows that, (18.8%) of women in Bafut do not attend antenatal clinic due to bad state of roads which even leads to cases of miscarriages. From field statistics, 29% of women in Bafut deliver on the road before reaching the hospital.

Photo 1 : Deplorable roads in Bafut Sub-division



Taking a view at the photo1, one can confirm that it will be very risky for a pregnant woman or women to travel through this bad state of road because it can lead to miscarriages or even complications during birth. 18.8% of women in Bafut complained of the difficulties encountered to attend antenatal check-ups during the rainy season due to the bad state of roads.

4.3. Child mortality combating stakeholders

Child mortality combat reflects the degree to which society exercises the most fundamental human right through the institutions put in place to effect these changes. The various stakeholders involved in child mortality combating in the area include; the government, the mission, the Bafut Coperative Credit Union and the community. The role of each of these stakeholders is discussed in this section.

4.3.1. The Government

The Cameroon health system is comprised of the public, private and denominational sectors. At a central level, health is the responsibility of the Ministry of Public Health with the assistance of other ministries and institutions that fulfill certain tasks in the health sector, such as the Ministry of Higher Education in charge of the training of medical personnel (doctors, nurses), while the Ministry of Scientific Research and Innovation is in charge of health research. The Ministry of Public Health is divided into four central divisions: the Department of Planning, Surveys and Statistics, Public Health Services: the Department of Preventive Medicine and the Department of Public Hygiene. The Cameroon State health organization works at three different levels. The lowest is made up of health centers and specialized centers that ensure health care for the population at the local level, and district hospitals offering general medical services and the highest level of state public health services being the central regional hospitals, which are equipped with specialized medical services especially in the maternity section. The government through the ministries of health and institutions work relentlessly to curb child mortality in the country at large and in Bafut Sub-division in particular.

5.3.2. The missions

To enable the entire population of Bafut enjoy good health and contribute constructively to efforts at raising growth and development, the government permits the missions to provide health facilities especially in remote areas such as: Maternal health and infant health, disease control, promoting health and development. Implementation of these programs have greatly contributed in improving mother and child health, controlling/containing major pandemics like HIV/AIDS, malaria, tuberculosis and other diseases amongst mothers and children, cultivate healthy behaviours in the entire population and strengthen the provision of health services and care in Bafut Sub-division.

Provision of immunization service has improved. This strategy put in place by the Cameroon government through health facilities in the Bafut health area provides immunization services in fixed strategy less than 5 km, advanced strategy between 5 and 20km, mobile strategy of more than 20 km performed by community health assistants from door to door to increase the rate of vaccination coverage among children 0 to 11 months and among pregnant women.

Fieldwork shows that, the proportion of children below five years sleeping under insecticide-treated mosquito nets has increased to about 80% as per many households. All health care services in the communities are effectively implementing the malaria management package of mosquito nets to about 80% in at least 4/5 of the health care areas of each health care unit within the health district. The proportion of health care facilities implementing malaria management norms and standards is growing and has reached 60% in at least 4/5 of the health care district (BDH 2018).

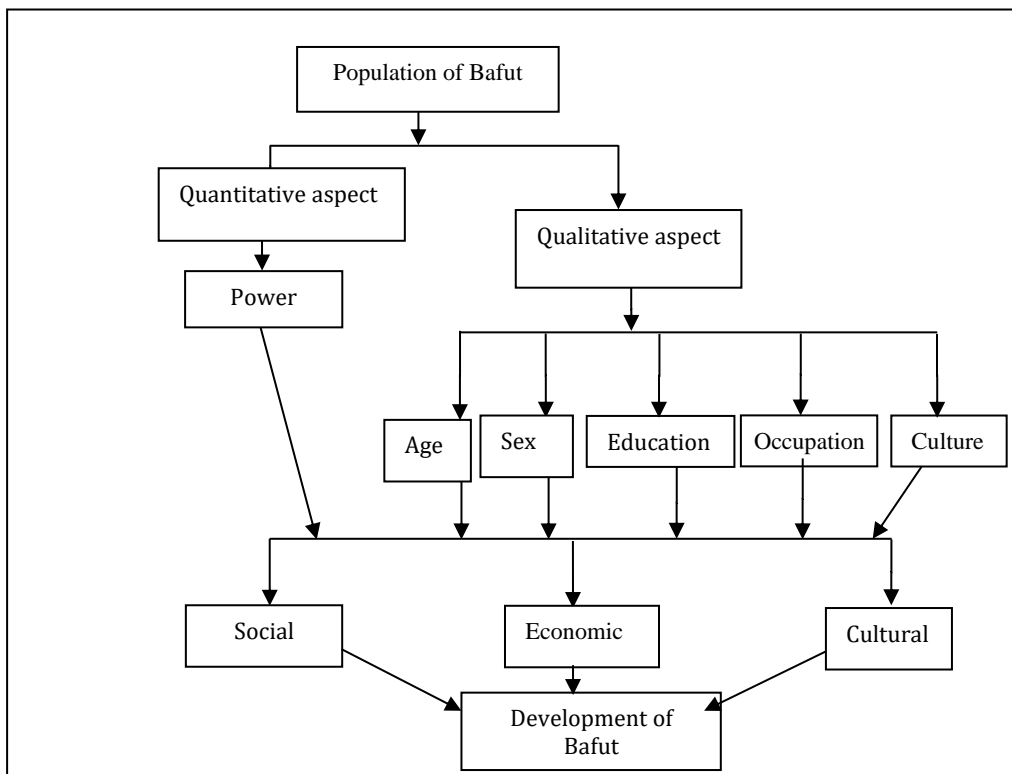
The Updated health map is made available and is a guide for the delivery of services and health care to every corner of the health district. This map will enable easy diffusion of ideas, techniques and personnel to the most remote areas of the health district. It is also going to be a good medium through which vaccination campaigns can be conducted as a strategy.

6. Combat impacts on the development of Bafut Sub-division

Health is wealth and remains the foundation for any development. This widely recognised fact has, of course, led to the adoption of the policy of “Health for all” and “All for Health”. This has been in a bit to better the situation of humanity as a healthy condition cannot be exchanged for any wealth. The United Nations Development Program defines development as “to live long and healthy lives, to be knowledgeable, to have access to the resources needed for a decent standard of living and to be able to participate in the life of the community”. Seers (1972) stipulated that development involved a change in the social, economic, political and cultural resources of the country. This is done via the creation of jobs and by this; incomes will change positively leading to the well-being of the people. Development is therefore a process or the result of transforming a resource for the welfare of man. It is a process by which something is made to grow or to evolve to a more complete, complex or desirable standard. Every development is a transformation process from a raw to a refined material. For example oil refinery in Bafut that processes palm nuts into palm oil for local consumption.

The population of Bafut Sub-division plays a vital role in the development of the area. Looking at the population of Bafut, we need to consider the population numbers in two aspects; the quantitative and the qualitative aspects of the population to foster development. In the quantitative aspect, we are looking at the total population of Bafut Sub-division which has contributed so much on the economic, social and cultural development of this municipality. On the other hand, the qualitative aspect of the population of Bafut is based on the demographic characteristics of the population such as age, sex, occupation, education and the cultural background, (figure 8)

Figure 8: The different aspects of the population of Bafut that have contributed to the development of the area



Source: Authors’ conception, (2018)

7. Recommendations

According to the findings of this study, child spacing will help reduce both infant and child deaths. There is therefore a need to sensitize people in Bafut Sub-division on the importance of child spacing (2-4 years) than the 1 to 2 years spacing that is practice presently and to implement health programs that will encourage the use of contraception for child spacing. Results suggest that, mothers' education should be made more easily accessible to women especially in the lower Bafut and the upper Mundum and Akofunguba areas. This will help women to be independent and able to make good decisions regarding child health. Education (at least secondary) and the creation of job opportunities in Bafut Sub-division as a whole will also help women get employment thereby improving their economic status.

More health services should be created in Bafut especially in the interior villages such as Mundum II, Akofunguba, Akossia, Ndung, Buwe Bukari, Tingoh, Mbakong, Mankanikong, Mangwi just to name a few so that mothers should avoid travelling for long distances during pregnancy which at times leads to miscarriages. The government should subsidize these services so that even the poor can also afford them. More emphasis should also be laid on the transport network of Bafut Sub-division. The government, NGOs and the local authorities should improve on the road network to ease accessibility.

The government of Cameroon and organizations involved in the health sectors should organize conferences and seminars in Bafut where women should be educated with the use of birth control methods and contraceptives to limit closely spaced pregnancies so as to avoid child mortality. Women in Bafut should have a strong involvement in employment opportunities either in the public or private sector. This is because employment opportunities of women lower child death according to the results of this study. When a woman has a well-paid job, she will be able to afford for the health facilities of the child especially in case where the partner is dead or separated.

The government through the ministry of public health should make available the distribution of health registers to all hospitals and health centers for the registration of all information concerning the health of the citizens in the various health centers in Cameroon and Bafut in particular.

8. Conclusion

This study, 'child mortality combat in the development of Bafut Sub-division,' sought to outline and examine the situation of child mortality in Bafut, to identify and examine factors associated with child mortality in Bafut Sub-division and to assess the strategies put in place by different stakeholders to combat it and how it has contributed to the development of the area. It used the 1996, 2001, 2006 and 2011 CDHS and the MICS. The chi square test was applied to test and validate the different hypotheses. The results support that Bafut Sub-division is experiencing a reduction in child mortality rate. Malaria has been found to be the most significant associated factor of child mortality in Bafut Sub-division and in Cameroon in general. About 71.4% of deaths below five years in Bafut are caused by malaria (fieldwork 2018). Other significant factors include; mother's education, sex of the child, marital status of the mother, mother's age at time of birth of the child, fathers' education, length of the preceding birth interval, mother's and father's occupation, weight of the child, drinking and smoking habit of the mother. A slim percentage of environmental factors such as flood, thunder storm and fire accidents have been found to have significantly contributed to child mortality in Bafut Sub-division.

Strategies such as free vaccination of children less than five years old, provision of treated mosquito nets, antenatal health education, free treatment of malaria for pregnant and under five children, health campaigns and sensitization, availability of first aid boxes in schools, were some of the strategies put in place by the actors mentioned above but bad roads was seen as one of the most hindering factors of the spread of these strategies. Bafut had witnessed a

significant reduction in child mortality rate (from 150 deaths per thousand in 1990 to 25 deaths per thousand in 2018), though did not achieve the MDG 4. Prospects should be made for the achievement of the SDG 3 by 2030.

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