The Mortality Situation in Cameroun

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Abstract

In this article, we examine the mortality situation in Cameroon in relation to other countries of the sub continent. Evidence for the overall childhood mortality rate suggests that 13 percent of the newborn babies are expected to die before their fifth birthday, a decline of 6 percent points from the 1978 value. This, compared to other Sub-Saharan African countries, appears to be moderate but is very high by other developing countries' or world's standard. In fact, the decline has not yet reached a reasonable minimum that could suggest noticeable improvement in the health status of the population at both macro and micro levels.

The adult mortality situation on the other hand is very high even by Sub-Saharan African standards. About 35 percent of those who survive childhood hazards up to age 15 are not expected to celebrate their 60th anniversary compared to barely 20 percent for some other countries of the sub continent. Even when compared to the childhood mortality situation, Cameroon is a country with very poor health for adults. It appears that children in Cameroon have benefitted more than adults from the reduction of overall mortality to a "moderate" level.

Consequently, as year 2000 approaches it is clear that Cameroon is still far from attaining the goal of "Health for All" and it is becoming very uncertain whether the target will be attained. As the results suggest, not only is there need for greater efforts to improve the survival of children in the country, but in addition, it is also necessary to institute strategies to maintain their health when they survive childhood.

Résumé

Dans cet exposé, nous examinons la situation de la mortalité au Cameroun en la comparant à celle qui prévaut dans d'autres pays du sous-continent. Les données disponibles sur le taux global de la mortalité infantile suggèrent que 13 % des nouveaux-nés meurent avant la célébration de leur cinquième anniversaire, ce qui constitue une baisse de 6 % par rapport à la situation de 1978. Ceci, si on le compare à d'autres pays d'Afrique au Sud du Sahara, apparaît comme un taux très modéré mais suffisamment élevé par rapport à la situation qui prévaut dans d'autres pays en développement et même par rapport à la situation mondiale. En effet, la baisse n'a pas encore atteint un niveau minimum raisonnable qui pourrait suggérer que la situation sanitaire de la population est devenue un poids moins lourd à supporter par les familles prises séparément et par le développement du pays dans son ensemble.

D'autre part, la situation de la mortalité chez les adultes est très préoccupante, même si l'on en juge par ce qui se passe généralement en Afrique, même si l'on en juge par ce qui se passe généralement en Afrique sub-saharienne. Environ 35 % de ceux qui arrivent à survivre au risque de l'enfance jusqu'à l'âge de 15 ans ont une espérance de vie n'atteignant pas les 60 ans à côté de ceux, qui dans d'autres pays du sous-continent, font à peine 20 %. Même si on la compare à la situation de la mortalité infantile, la situation de la santé des adultes au Cameroun est très préoccupante. Il semble que les enfants aient bénéficié plus que les adultes de la baisse de la mortalité globale de manière tout de même "modérée".

En conséquence, à mesure que l'an 2000 approche, il apparaît nettement que le Cameroun est loin d'atteindre son objectif déclaré de "La santé pour tous avant l'an 2000" et, il est devenu très incertain si l'objectif sera jamais atteint. Comme le suggèrent les résultats, non seulement il existe un réel besoin de multiplier les efforts pour améliorer la survie de l'enfant dans le pays, mais en plus, il est tout aussi important, et/ou nécessaire, de développer des stratégies aptes à maintenir leur santé à un bon niveau même s'ils réussissent à survivre à l'enfance.

Introduction

Developing countries in general and Africa in particular have for long being experiencing very high mortality rates. This persistent high mortality has been a subject of concern to social scientists, policy makers, the public at large and especially the governments who have been striving to allocate their meagre resources towards the reduction of mortality to acceptable levels. Available evidence shows that over the last three decades, appreciable declines in mortality rates have occurred in almost all developing countries. For instance, among the developing countries with adequate information in 1960, the median probability of dying before age $_5q_0$ was 200 per 1000 live births. Childhood mortality was lowest at a median value of 145 per 1000 in Latin America, somewhat higher (170) in Asia and Oceania and clearly highest in Africa with a median value of 228 per 1000 (UN, 1992a). Current estimates for 1985-90 indicate that childhood mortality has fallen sharply in all regions though they still remain very high in Africa. The median probability of dying before age 5 was, globally, 80 per 1000 live births but ranged regionally from a low 47 for Latin America through 50 for Asia and Oceania to a high 155 per 1000 for Africa. Thus, the childhood mortality level for Africa is clearly three times higher than for the other developing regions. That is, a child born in Africa is at least three times more likely to die during childhood than if he/she were born in the other developing regions.

This article examines the mortality situation in Cameroon with particular attention to infant and child mortality and their major causes. The results presented are mainly from two surveys, the Cameroon fertility survey (CFS) of 1978 and the Demographic and health survey of Cameroon (CDHS) of 1991. The results are compared to those of other countries of the sub continent that also took part in the DHS programme.

General Mortality Level and Trends for Cameroon

For the early 1960s, rough estimates for Cameroon indicate that the crude death rate (CDR) was about 23 per thousand population (Cameroun, 1978 ; UN, 1993). Estimates for the northern part of the country made by the Princeton group (Coale, 1968 ; Brass, 1968) showed that the CDR was at least 31 per 1000. But based on the second census results of 1987, the CDR was estimated at 13.7 per 1000 population, down from the 1976 value of 20.4 per 1000 - a decline of about 32.8 percent.

Table 1 presents estimates of the principal indicators of general mortality and its evolution. The life expectancy at birth (e_0) which provides a better estimate of mortality than CDR indicates that an average Cameroonian born currently will expect to live for 53 years.

There is some slight indication of male excess mortality in relation to that of females evident in the e_0. For instance, the CDR for males in 1987 was estimated at 15.4 against 12.7 for females or 13.7 for the entire population. The difference between life expectancies of males and females which was about 2.4 years in 1976 had increased to about 3.8 years in 1987 suggesting a further deterioration of male health relative to that of females.

Infant and Child Mortality

Most often, infant and child mortality rate is considered as one of the best indicators of the level of development, health and standard of life of a population given that it is a very sensitive index of the socio-economic status of the population. At the time of independence some three decades ago, childhood hazards were much greater than now. For instance, rough estimates show that around 1960 in Cameroon, the probability of dying before age 5 was 29.1 percent , declining to about 18.9 percent by the early 1970s (Hill, 1990). Within the country some regions experienced death rates of above 35 percent (see also Coale, 1968).

Estimates from the CFS which collected more detailed information on mortality from a sample of 8219 women show just a slight difference from these rough estimates for the rates pertaining to about the same periods. For the period 1973-78, the estimates show that two newborns (19.5 percent) out of every ten died before the age of 5 with at least one (10.5 percent) of them dying during their first year of life, in which case infant mortality ($_1q_0$) was just as high as child mortality ($_4q_1$).

Table 2 presents the estimates of infant and child mortality rates from results of the CFS and CDHS for certain periods before the survey. The results however, do not seem to agree perfectly as to the

rate of decline or levels for certain periods, probably due to differences in the conduct of the two surveys as well as sampling differences. The CDHS 1991 conducted some 13 years after the CFS was somewhat poorly executed and the sample size was less than half of the CFS sample. But despite the erratic nature of the estimates, there is every indication of a slow and steady decline in the level of infant and child mortality (see Fig. 1). In the period 10-14 years prior to the CFS corresponding approximately to 1963-68, the probability of a child dying before the 5th birthday was about 24 percent. By 1973-78, it had declined to 20 percent. The recent results of the CDHS show that childhood mortality further declined to about 13 percent in the late 1980s.

The fluctuations in mortality at the young ages suggest that during the first year of life, neonatal mortality is becoming relatively more important than post-neonatal mortality, a reverse of what prevailed around the 1970s. The relationship of infant mortality ($_1q_0$) is a bit erratic. For the current period, it is of the same order of magnitude though infant mortality appears to have been heavier in the past. It is also clear from the table that the decline has been contributed by all the ages with a slightly greater decline at the level of infant rates if we take the figures at face value. For instance, infant mortality fell from 135 per 1000 live births in the early 1960s to about 65 in the recent period while child mortality fell from 126 to 66 during the same period.

For all the developing countries with available information (see UN, 1992a), the average childhood mortality rate (($_5q_0$) stands at about 80 per 1000 live births but as high as 155 for Africa as a whole. The mortality rates for selected Sub-Saharan African countries participating in the DHS programme are presented in Table 3. These countries have been ordered downward by their magnitude of under 5 or childhood mortality in the DHS.

The table shows that the chances of early death for today's newborn babies varies greatly within the sub continent from a low 53 per 1000 births in Botswana to a high 249 in Mali. The observed size and pace of decline in death rates between the 1970s and the late 1980s also varied greatly among the countries; some countries have experienced dramatic declines in childhood deaths while at the other end of the spectrum, there are few others with increasing childhood deaths.

The highest reductions in childhood mortality of more than half (55 percent) is observed for Botswana, and above 40 percent for Zimbabwe and Kenya whereas countries like Liberia, Nigeria, Ghana and Uganda appeared to have experienced a deterioration of their childhood mortality situation. The worst deterioration both in absolute and in relative terms for Liberia is understandable given the persistent civil strife. The case of Uganda that has been virtually stagnant since the late 1960s may also be explained by the alarming incidence of AIDS and the civil war of the 1980s. But the cases of Nigeria and Ghana with increasing infant deaths are somewhat puzzling.

For Cameroon, the evidence is that childhood mortality is quite high compared to the average for all developing countries but the table places the country in a moderate position by Sub-Saharan African standards. It is also worthy of note here that the percentage decline in $_5q_0$ for Cameroon (35 percent) is comparable to that for Africa as a whole (32 percent) over the last three decades.

Grouping the countries into three categories, Cameroon falls in the middle range worse than the "best performers" such as Kenya, Botswana and Zimbabwe (where childhood mortality has been brought to below 100 per 1000 births) but better than Mali, Liberia, Uganda, Burundi and Nigeria. In any case, the level of childhood mortality is generally high even for the standard (Sub-Saharan Africa) and we are nowhere close to the reasonable minimum of 50 per 1000 births that was proposed way back in the early 1980s except the case of Botswana with about 53 per 1000 lives births. Thus, in spite of the progress made over the last decades, many children are still dying before age 5.

Causes of Death during Childhood

Knowledge of the specific causes of death is essential in defining the relative order of importance of the various causes but not the main solution to problems of controlling infant and child mortality (because of the issue of competing risks or death from multiple causes). Often times, the main causes of death are classified as endogenous or exogenous. The former which usually occur soon after birth are related to the birth process itself and include immaturity, obstetrical problems, congenital

malformation, neonatal tetanus, etc. Exogenous causes that usually come into play after the first month of life are more environmentally determined. These include parasitic and infectious diseases, other medical and non-medical causes.

The CDHS 1991 collected some information on causes of children deaths. The main reported causes of death among infants that died within their first month of life were respiratory infections which accounted for 13.6 percent of the deaths. This was closely followed by immaturity with 11.6 percent, then tetanus and other obstetrical problems. Malaria accounted for 8.8 percent of the deaths. However, it is worth noting that for at least one out of every four (29.4 percent) infant deaths during the first month of life, the mother could neither determine nor tell the cause (Direction du 2ème RGPH, 1992).

For those who survived the first month of life and died before their fifth anniversary, the major cause is measles which took care of 18.9 percent of the deaths. This appears to be in line with some studies that suggest measles are commonly responsible for about 20 percent of the annual childhood deaths in Africa (see Dackam, 1989). Diarrhea comes second position with 17.4 percent and malaria third (15.7 percent). However, if malaria were to be combined with other fever or taking all the children together, malaria singles out itself as the principal cause of death during childhood. Besides, this is actually the case when the causes of death are deduced from symptoms. Indeed, as Boerma et al (1991) rightly indicates, recurrent attacks of malaria often results in severe anemia and most likely affects the child's nutritional status and subsequent resistance to other infections. This implies that further efforts to combat malaria will offer many children the chances to survive. On the whole, malaria, measles, respiratory infections and diarrhea took care of the lives of half of the children that died before they could ever celebrate their fifth birthday if the figures are taken at face value.

Adult Mortality

As studies on mortality are most often concerned with infant and child deaths, the available information on adult mortality in Africa south of the Sahara is limited, unreliable and even far more scanty than that of infant and child mortality. The levels have been little investigate and so it is difficult to make any firm statements for Cameroon. Nevertheless, it has been estimated that the probability of dying between ages 15 and 60 (measure of adult mortality) in Sub-Saharan Africa is broadly similar to the probability of dying in childhood (Timaeus, 1989 ; cited in Hill, 1990).

A general review of this topic has been presented by Timaeus (1993) for a range of countries for which information is available. These estimates which are the most recent for a selected countries are presented in Table 4. Here again we have ordered the countries by descending order of magnitude of survivorship ratio ($_{45}p_{15}$) to show the position of Cameroon.

The results again reveal that the average level of adult mortality in Sub-Saharan African though variable is very high compared to the rest of the world or other developing countries. For instance, estimates of life expectancy at exact age 15 where available (see UN, 1992b) for Sub-Saharan Africa, rarely exceed 50 years compared to that of the other developing countries that in most cases is within the neighborhood of 60 years. Also, there are apparently wide differences (though not as large as in the case of childhood mortality) in adult mortality levels between the countries in the sub continent. Comparing this table with Table 3, the balance between childhood and adult mortality is also found to vary across countries with some countries having relatively low adult compared to childhood mortality and others the reverse like Botswana with very low childhood mortality that exhibit very high adult mortality. However, there are some countries that we could term "best performers" such as Kenya and Zimbabwe where both adult and childhood mortality are quite low[2] and some few at the other end of the spectrum like Mali where both levels are high. The progress over the last three decades and the knowledge of health and medical technology notwithstanding, the results generally suggest that many adults continue to die before their 60th birthday or before the "conventional" end of activity.

For Cameroon, the results indicate that adult mortality is very high even when compared to other countries of the sub continent. The estimates show that an average Cameroonian who managed to overcome childhood hazards and attain age 15 has slightly above 6 chances in 10 to ever celebrate this 60[th]anniversary compared to about 8 chances for say a Zimbabwean, Gambian, Ghanaian or

Mauritanian. That is, in Cameroon as many as 35 percent of those who survive to age 15 would die before the celebration of their 60th birthday (against 17 percent for Mauritania and Zimbabwe, 20 percent for Ghana, 24 percent for Benin, etc.) at the levels of mortality prevailing in the 1980s.

Besides, compared to the childhood mortality levels where Cameroon's position is somewhat "moderate", adult mortality is clearly very high. Gender disparities in adult mortality are somehow small but despite the usual indication of high maternal mortality, female survivorship in adulthood is slightly higher than for males. As such the high adult mortality cannot be attributed to the prevailing high incidence of maternal mortality in the country.

These results suggest that for adults relative to children, Cameroon is a country with very poor health status. As such sustained efforts are required not only in the domain of child health but also that of adult health to improve the survival of the children and also maintain their health after they survive childhood. However, little is known about the causes of prevailing high adult mortality because of lack of information on adult health problems in the country.

Future Levels of Mortality

The health situation of the population has deteriorated in recent years resulting from civil and/or political struggles which have both provoked heavy death tolls and rendered many people homeless. There is widespread and aggravated malnutrition, lack of basic needs of water and shelter, etc. The advancement of the desert is also taking its toll while other forms of environmental degradation (severe and prolonged droughts and floods among others) have all been, and still are, detrimental to health. Coupled with these, is the advent of epidemics that take away many lives. A case in point is that of cholera, meningitis and yellow fever in the northern parts of Cameroon[3].

Another major issue affecting health is the current economic crises with all its deleterious effects. As indicated earlier, infant mortality in particular and mortality in general, is very sensitive to changes in the socio-economic status. The "imposed" poverty associated with the crises may likely increase the level of mortality because of the inability of the people to bear the cost of health care. Many people have given up on relatives and watch them die because they have no money to buy drugs. Others have had to choose between sick relatives for treatment only those they will very much want alive[4]. The level of malnutrition on the other hand is increasing as a result of the constant deterioration in standards of living of the population. Famine is becoming rampant as many areas of the country face disastrous food shortages and the skyrocketing prices.

The part of the national budget allotted to health which defines the health policy has also been handicapped by the crises and the heavy debt burden. Worst still, some of the policies adopted to overcome the crises (so they say) have rather led to widespread health problems. Furthermore, the crises adversely affect female education, which is an important factor that may lower infant and child mortality. The AIDS epidemics compounds all these poor conditions.

Predicting future levels of mortality or health is at best speculative. Nevertheless, there is every likelihood that the above mentioned unfavorable factors may tend not only to counter the slight achievements of lower childhood mortality but may also outweigh the favorable factors and worsen adult mortality to a point where death rates may rise.

Conclusions

In this article, we have examined the mortality situation in Cameroon compared to that of other Sub-Saharan African countries. Evidence presented show appreciable declines in infant and child mortality over the past three decades with the decline in infant mortality virtually the same as that of child mortality. The overall childhood mortality rate as assessed in 1991, suggests that around 13 percent of the newborn babies would expect to die before their fifth anniversary down from 19 percent in 1978. Compared to other Sub-Saharan African countries, this rate appears moderate. But it is evident that the population is experiencing very high mortality rates when compared to other developing countries, or world's standard. Besides, the expectation of life at birth is below the conventional stop

of activity and equally below the reasonable minimum proposed by WHO (WHO, 1981) way back in 1981 for mortality to be a lesser burden on the individual families and on the country's development.

Also, in spite of this apparent moderate childhood mortality situation in Cameroon by African standards, the adult mortality level on the other hand is very high even by Sub-Saharan African standards. Barely 65 percent of those who survive childhood hazards up to 15 years of age would expect to celebrate their 60th anniversary compared to other countries of the sub continent with about 80 percent. Even when compared to the childhood mortality situation, Cameroon is a country with very poor health for adults. It seems children have benefitted more than adults from the reduction of overall mortality to a "moderate" level. The results suggest that, in addition to making more efforts to improve the survival of children in the country, it is necessary to institute strategies to maintain their health when they survive childhood".

In order to maintain a steady decline in infant and child mortality, basic facilities such as access to safe drinking water and sanitation are required in addition to the provision of adequate health care facilities. Health care facilities at present are grossly insufficient and poor where available and inexistent some localities. These should be made available and accessible. The health care must of necessity start with prenatal care. Besides, it will also be essential to impress on pregnant women or potential users not only on the need to use them but also to do so early in pregnancy in order to permit the detection and easy handling of complications.

The aforementioned financial accessibility requires strategies to alleviate the current widespread poverty because it tends to increase the mortality risks of the population. As a matter of fact, it will be difficult to talk of health if a great majority of the people are unable to assure subsistence. Just the inability to afford subsistence implies health is endangered. As a matter of fact, the rises in prices of basic commodities have demoted health in the list of individuals' essential needs.

Education (of women especially) is associated with lower risks of mortality for children (see for instance Bicego and Boerma, 1991; Cleland et al, 1991; on Cameroon data see also Cameroon, 1983; Direction du 2ème RGPH, 1992; Tamen, 1992) even when the woman has not completed primary level. For instance, the CDHS results for Cameroon show that the risk of dying before the fifth birthday is about twice as high for children of uneducated mothers than it is for children of mothers with some minimum level of education. Education creates the basic awareness of sanitation, nutrition and health issues. Thus, policies aimed at the expansion of educational opportunities particularly for women will give them greater access to information and improve their ability to make use of such information in order to live healthily.

If these and other appropriate and realistic measures are not undertaken, we will surely approach the year 2000 with the package "Health for All" remaining not only a slogan but worse off than where we started.

Table 1 : Principal indicators of General Mortality for Cameroon

Indicator	1960-65	1970-75	1980-85	1990-95	1976	1987
CDR'000'	23.4	19.5	15.6	12.2	20.4	13.7
e_0 Both sexes	40.5	45.8	51.0	56.0	44.4	53.4
Males	39.0	44.3	49.5	54.5	43.2	52.4
Females	42.0	47.3	52.5	57.5	45.6	56.2

Note :e_0 Life expectancy at birth.
CDR crude death rate per 1000 population
<u>Sources</u> :Except for 1976 and 1987 (respective census estimates), all are medium variant estimates from UN (1993).

Table 2 :Childhood mortality rates for certain periods before the surveys : CFS 1978 and CDHS 1991

Years to survey	NN	P-NN	Infant $_1q_0$	Child $_4q_1$	Childhood $_5q_0$
197810-14	61.2	73.6	134.7	124.6	242.5
5-9	47.1	55.8	102.8	101.4	193.8
0-4	47.3	58.3	105.6	100.0	195.0
199110-14	55.4	52.7	108.1	100.6	197.9
5-9	52.4	44.9	97.3	73.8	164.0
0-4	33.1	31.9	65.0	65.6	126.3

<u>Note</u> :NN Neonatal P-NN Post-neonatal
<u>Sources</u> :For CFS 1978, Rutstein (1994).
For CDHS 1991, Direction du 2ème RGPH (1992).

Table 3 :Current levels of mortality for selected countries DHS and WFS

Country	DHS Date	$_5q_0$	WFS Date	$_5q_0$	Change	% Change
Mali	1987	249	1961@	348	- 99	- 28.4
Liberia	1986	220	1974*	178	+ 42	+ 23.6
Nigeria	1990	192	1981-82	165	+ 27	+ 16.4
Senegal	1986	190	1978	262	- 72	- 27.5
Uganda	1988-89	190	1969*	194	- 4	- 2.1
Togo	1988	158	1971*	219	- 61	- 27.9
Ghana	1988	155	1979	127	+ 28	+ 22.0
Burundi	1987	152	1979*	229	- 77	- 33.6
Cameroon	1991	126	1978	191	- 69	- 35.4
Sudan !	1989-90	123	1979-80	151	- 28	- 18.5
Kenya	1989	89	1977-78	149	- 60	- 40.3
Zimbabwe	1988	75	1982*	134	- 59	- 44.0
Botswana	1988	53	1981*	118	- 65	- 55.1

Notes:! Mostly refers to Northern Sudan.
@ National Demographic Survey.
* Census estimates North Model Life Table.
Countries have been ordered here by magnitude of childhood mortality rate in the DHS.
Sources:Compiled from Hill (1993) except for Cameroon.
For WFS, see Rutstein (1984).

Table 4 :Estimates of adult mortality : life expectancy at age 15 (e15) and survivorship from age 15 to 60 (45q15), selected countries 1970-80

Country	Life Expectancy at 15				Survivorship Ratios			
	Date	Male	Female	Both	Date	Male	Female	Both
Zimbabwe	1975	52.3	57.0	54.6	1978	.801	.863	.833
Ghana	1968	45.5	47.5	46.5	1982	.778	.880	.830
Benin	1970	46.2	48.3	47.3	1978	.749	.779	.764
Kenya	1974	49.5	55.9	52.7	1974	.714	.769	.742
Togo	--	--	--	--	1981	.704	.760	.733
Sudan*	1975	55.9	55.6	55.7	1975	.695	.768	.732
Côte d'Ivoire	1978	46.8	46.5	46.7	1978	.646	.741	.694
Senegal	1978	48.9	51.5	50.0	1978	.652	.710	.682
Congo	1967	52.4	55.6	54.0	1984	.656	.703	.680
Tanzania	1965	52.8	54.4	53.6	1988	.656	.675	.666
Burundi	1970	43.1	46.2	44.6	1981	.622	.699	.661
Cameroon	1975	50.5	54.2	52.4	1976	.644	.666	.654
Botswana	1965	50.3	54.6	52.5	1980	.555	.732	.646
Lesotho	1976	42.3	52.4	47.4	1976	.503	.749	.627
Mali	--	--	--	--	1986	.579	.541	.560

<u>Notes</u> :-- Not available.
* Northern Sudan.
<u>Sources</u> :Timaeus (1987 ; reproduced in Hill, 1990) for life expectancy ; Timaeus (1993) for survivorship.

Notes

1.A report by the World Health Organization (WHO, 1981), indicates that each country can decide on its own norms, but suggests a minimum life expectancy of at least 60 years at birth and a maximum infant mortality of 50 per 1000 live births to imply that the health status of the population is becoming a decreasing burden on individual families and community development.

2.Such interpretations need to be taken with some caution because, the estimates as clearly indicated in the table refer to different dates and also there is the likelihood that causes of death may differ greatly between the countries.

3.In the specific case of meningitis, a major outbreak occurred in the Far North Province in 1992 with about 7782 cases recorded in health facilities and 705 deaths : representing a case fatality rate of 9.1 percent. In 1993, though the reported cases in health facilities fell to 3134, there were 412 deaths raising the case fatality to 13.2 percent. These figures are however, gross underestimates because they are based only on patients that visited health facilities.

4.We encountered some of these cases in some interviews conducted in the Northern part of the country, most of which occurred during epidemic outbreaks. It was noted that some families have had to choose between sick members who could not all be taken to at the same time health facilities at the same time because of inaccessibility (both financial and geographical). It is worthy of note that in some areas where private missions facilities existed, this eventuality was eliminated by the fact that these facilities could offer treatment on a deferred payment basis.

5.Another implication of this study though it was not our initial aim, is on the use of infant and/or childhood mortality level as an indicator of the general health status of the population. As we have seen, it may be useful in some populations where adult mortality is of about the same magnitude as that of children but is quite misleading for some other populations. For instance, the case of Cameroon where childhood mortality may be termed moderate but there is little health assurance after the children survive childhood.

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