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A study of vital and health statistics of the Kainji Lake Area of Nigeria

E. O. ADEKOLU-JOHN

Department of Epidemiology and Community Health, Faculty of Health Sciences, University of Ilorin, Ilorin, Nigeria

Summary

A survey of vital and health statistics, and the evaluation of collection of these data in the registration centres of Kainji Lake Area, are presented. Forty-two per cent of all deaths occurred below 10 years of age, with the largest percentage occurring below 5 years of age. The leading causes of all deaths were malaria, gastro-intestinal disorders and measles. Occurrence of an epidemic was found to be significant to the overall mortality. The role of traditional healers in the control of childhood mortality is discussed. About 34% of the women had married more than once and 56% of the divorces occurred after the first marriage. The causes of divorces were largely due to loss of affection and neglect. The number of deliveries in the hospitals was more than the number of registered births and no death was registered at the centres. A unique system of collection of vital information was suggested for the Kainji Lake Area.

Résumé

Une étude des statistiques vitales et sanitaires et l'évaluation de la collecte de ces données dans les centres d'inscription de la Région du Lac Kainji sont présentées. Quarante-deux de tous les décès intervinrent en dessous de l'âge de dix ans avec le plus fort pourcentage avant l'âge de cinq ans. Les causes dominantes de tous les décès furent la malaria, les désordres gastro-intestinaux et la rougeole que l'observation révéla comme causes de morbidité. Il fut observé que l'occurrence de l'épidémie était significative par rapport à la mortalité totale. Le rôle des guérisseurs traditionnels dans la lutte contre la mortalité infantile fut discuté. Environ 34% des femmes s'étaient remariées

au moins une fois et 56% des divorces se produisirent après le premier mariage. Les divorces étaient essentiellement dus à la perte d'affection ou à l'abandon. Le nombre des accouchements dans les hôpitaux était supérieur au nombre des naissances enregistrées et aucun décès ne fut enregistré dans ces centres. Un système unique de collecte de renseignements vitaux fut suggéré pour la Région du Lac Kainji.

Introduction

Information on morbidity has always been available in reports from health-care delivery facilities located in the Kainji Lake Area [1]. However, there is dearth of information on births, deaths, marriages and divorces, which constitute vital and health statistics. The importance of such information becomes relevant when the health status of the communities in the Kainji Lake Area is assessed. Although vital registration for births and deaths has been established by the different Native Authorities (Borgu for western part, and Yauri and Kontogora for the eastern part) governing the study area since 1954 (Registration of births and deaths rules, 1961), like most parts of Nigeria where similar laws existed, the law was not enforced in all the villages of the study area, even in the registration centres. The purpose of the present survey was to explore the possibility of establishing baseline data on vital and health statistics in the Kainji Lake Area for the purpose of health planning and, with other studies, to establish the health status of the communities in the Kainji Lake Area.

Patients and methods

Eight villages located in 10% of the randomly

selected habitable units of the Kainji Lake Area were chosen for the study. The details of the sampling of the habitable units and the characteristics of the villages selected have been described [2]. A questionnaire was then designed and administered among 1091 heads of households living in 687 compounds. A household is that described by Gilles [3] as a group of people farming together, feeding out of the same pot, having a single family head usually, but not invariably, living in the same shelter. In the questionnaire each head of a household was asked to state the names, ages, sex and causes of all deaths, or describe what led to all deaths within the year. He was further asked to state the names and sex of all births, and whether the child was alive or dead. If the child was dead, he was asked for the cause, or causes, of death. The survey was conducted annually for 3 years. For the purpose of this study the most popular Muslim festival *Id-el-Kabir* preceding the time of the survey was used as reference. To a large extent, the timing of Muslim festivals had been known to vary from one year to another. It so happened in this study that for 3 years the timing of the festival was regular and coincided with the annual survey of this study.

In another questionnaire, the heads of compounds were asked to state the names of all married women and the respective husbands resident in their compounds. Each woman enumerated was asked, in the presence of the husband, how many marriages she had contracted, and the reason for divorce if she had married more than once.

The questionnaires, after they had been pre-tested, were administered by trained staff under the supervision of the author. The author visited all the registration centres for births and deaths, recorded all the births and deaths registered from the inception of the registration, and interviewed the registrars on the procedure adopted on registration of births and deaths. The two hospitals in New Bussa were visited and the number of live births was recorded from the inception. Figure 1 shows the location of the villages and the registration centres.

Results

Table 1 shows the age distribution of all deaths

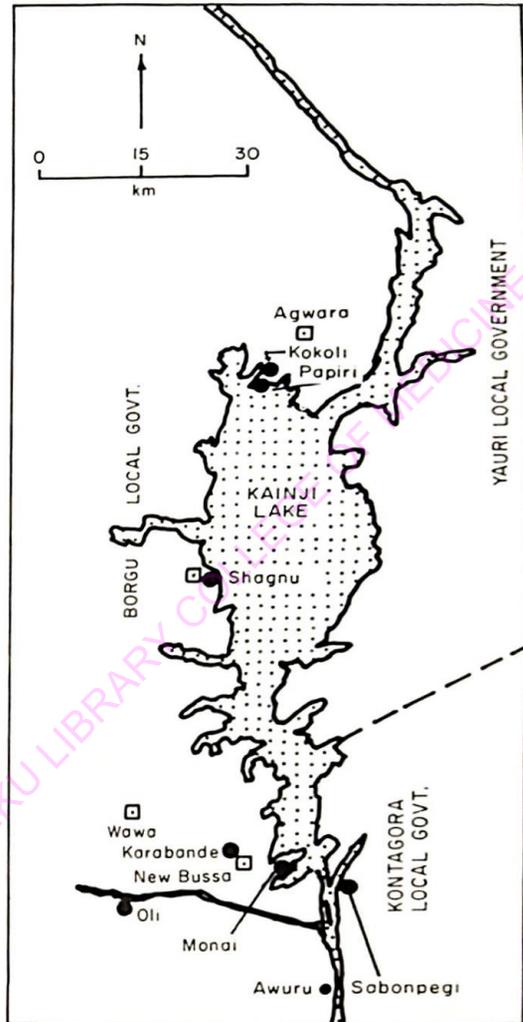


Fig. 1. The location of the villages of study (●) and the registration centres (□).

for the 3-year period of study in all the villages. Altogether 291 deaths were recorded. The largest percentage (34.0%) of deaths occurred below 5 years of age, and about 41.6% (121 out of 291) of deaths occurred below 10 years of age. Seven still-births were also recorded for the same period of study. In the third year 11 deaths (3.8%) occurred due to old age. Table 1 also shows a sharp drop in the number of deaths in the third year (46) compared with those in the second (131) and first years (114).

Table 1. Age distribution of all deaths for a 3-year period of study in all sampled villages

Age group	Year 1	Year 2	Year 3	Total	% total
Less than 5 years	41	51	7	99	34.0
5-9	10	8	4	22	7.6
10-14	3	6	2	11	3.8
15-19	2	5	1	8	2.7
20-24	4	0	0	4	1.4
25-29	7	4	1	12	4.1
30-34	5	4	2	11	3.8
35-39	3	5	4	12	4.1
40-44	3	10	6	19	6.5
45-49	0	5	1	6	2.1
50-54	6	8	3	17	5.8
55-59	2	4	3	9	3.1
60+	28	21	12	61	21.0
Total	114	131	46	291	100.0

Table 2 shows the causes of all deaths within the study period. Malaria, gastroenteritis and measles were the leading causes of deaths. Previous analysis had shown that the higher number of deaths caused by gastroenteritis in the first year (1977) was a result of a cholera epidemic in Karabande. There was also an epidemic of measles in the second year (1978) in Karabande, which made measles the third commonest cause of death in the study. Deaths due to gastroenteritis and malaria dropped, and no

death due to measles was recorded in the third year.

Table 3 shows the distribution of married women by the number of marriages contracted. Out of 1179 women, 782 (66.3%) married only once at the time of the survey and 397 (33.7%) married more than once. Out of these, 292 (24.8%) married twice and 105 women (8.9%) married more often. Table 4 shows pattern of divorce and the reasons for divorce. Altogether there were 524 divorces, 292 (55.7%) of the

Table 2. Causes of all deaths for the 3-year period of study in all sampled villages

Causes of deaths	Year 1	Year 2	Year 3	Total	% total
Gastroenteritis	67	22	9	98	33.7
Malaria	32	48	16	96	32.9
Measles	5	17	0	22	7.6
Convulsion	2	3	1	6	2.1
Chest infections	2	2	3	7	2.4
Accident	1	4	0	5	1.7
Nutritional disorders	1	2	0	3	1.0
Labour complications	2	1	1	4	1.4
Septicaemia	2	2	0	4	1.4
Poison	0	1	1	2	0.7
Old age	0	0	11	11	3.8
Others*	0	29	4	33	11.3
Total	114	131	46	291	100.0

*Including deaths whose causes were not known.

Table 3. Distribution of married women into the number of marriages contracted

No. marriages contracted	Karabande	Monai	Shagunu	Awuru	Oli	Sabopegi	Papiri	Kokoli	Total	% total
1	212	48	169	85	50	106	56	56	782	66.3
2	53	8	63	23	12	40	67	26	292	24.8
3	17	4	21	6	2	7	22	6	85	7.2
4	2	0	6	2	0	3	4	2	19	1.6
5	0	0	0	0	0	0	0	0	0	0.0
6	0	0	0	0	0	0	1	0	1	0.1
Total	284	60	259	116	64	156	150	90	1179	100.0

divorces occurred after the first marriage and 32.4% (170) after the second marriage. Loss of affection, cruelty and desertion accounted for about 70% (365) of all divorces. Twenty-two per cent (117) of the women were widows who had remarried.

Table 5 shows the annual registration of births, and the years when registration of births and deaths started in the four major centres in the study area. Within the period of 15 years since the registration of births, there were 6504 births registered but no deaths. There was general increase in the number of registered births for the period. Table 5 also shows that the proportion of registered births for non-indigenes was greater than for indigenes in New Bussa and Agwara, particularly since 1970, but the difference was generally smaller in Wawa and Shagunu throughout the reporting period.

Table 6 shows annual distribution of live births recorded at the National Electric Power Authority (NEPA) Hospital and the General Hospital, both at New Bussa; 9830 live births were delivered in the two hospitals between 1969 and 1980. This number far outstripped the number of registered births recorded for New Bussa (4972) in particular, and in all the registration centres (6504) in the study area put together for the same period.

Discussion

Previous study of the disease patterns in all dispensary locations identified malaria, gastroenteritis, and chest and skin infections as the

leading causes of mortality in the study area [4]. The present study has established that malaria, gastroenteritis and measles were the leading causes of mortality in the population, particularly in the age group below 5 years. The leading causes of morbidity are to a large extent the leading causes of mortality in the Kainji Lake Area.

Gilles [3] observed that, besides bacterial, protozoal infection, enteroviruses and malnutrition, malaria, particularly due to *Plasmodium falciparum*, would commonly present as diarrhoea in young children. It is probable that a considerable proportion of deaths due to gastroenteritis in this study were in fact caused by malaria. Therefore, the high mortality within the first 5 years of life, as demonstrated in the age distribution, could be due to malaria infection. If so, it is necessary to emphasize the need to control malaria in this environment, particularly in children below the age of 5 years. The Kainji Lake environment is holo-endemic for malaria [5] and an effective infant welfare clinic should be organized, where chemoprophylaxis against malaria should be introduced to children below the age of 5 years.

The outbreak of cholera and measles in Karabande, resulting in increased mortality in the years that they occurred, has brought to focus the potential of communicable diseases, which occur at low prevalence, in influencing the overall mortality pattern in a population when they occur as epidemics. It is, therefore, important for an effective surveillance on other communicable diseases of less virulence to be set up to detect their epidemic tendencies.

Adekolu-John [4] has shown that health-care

Table 4. Pattern of divorcees and the reasons for divorce in studied villages

	Karabande	Monai	Shagunu	Awuru	Oli	Sabonpegi	Papiri	Kokoli	Total	% total
<i>No. divorcees</i>										
1	53	8	63	23	12	40	67	26	292	55.7
2	34	8	42	12	4	14	44	12	170	32.4
3	6	0	18	6	0	9	12	6	57	10.9
4	0	0	0	0	0	0	0	0	0	0.0
5	0	0	0	0	0	0	5	0	5	1.0
Total	93	16	123	41	16	63	128	44	524	100.0
<i>Reasons for divorcees</i>										
Loss of affection	58	8	68	32	11	43	98	26	344	65.6
Death of husbands	29	7	24	8	5	19	16	9	117	22.3
Cruelty and desertion	0	0	6	1	0	1	14	21	21	4.0
Desire for pregnancy	4	1	6	0	0	0	0	2	13	2.5
Frequent child loss	0	0	5	0	0	0	0	0	5	1.0
Forced marriage	2	0	1	0	0	0	0	0	3	0.6
Others*	0	0	13	0	0	1	0	7	21	4.0
Total	93	16	123	41	16	63	128	44	524	100.0

*Others including: old age, disapproval by parents, frequent quarrels with other wives.

Table 5. Annual registration of births at different registration centres around the study area

	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	Total
<i>New Bassa</i>																	
Indigenes	38	36	32	7	31	39	44	30	31	27	61	23	80	126	100	133	838
Non-indigenes	10	25	13	3	27	60	102	67	61	99	226	138	692	1032	763	816	4134
Total	48	61	45	10	58	99	146	97	92	126	287	161	772	1158	863	949	4972
<i>Agwara</i>																	
Indigenes	0	1	0	34	0	0	2	2	15	19	17	15	5	9	19	16	154
Non-indigenes	0	5	1	16	2	24	49	72	21	30	27	15	41	57	76	52	488
Total	0	6	1	50	2	24	51	74	36	49	44	30	46	66	95	68	642
<i>Wawa</i>																	
Indigenes	0	0	0	3	33	12	22	3	28	59	30	37	25	68	71	33	424
Non-indigenes	0	0	0	1	44	8	20	2	18	19	21	49	31	53	59	39	364
Total	0	0	0	4	77	20	42	5	46	78	51	86	56	121	130	72	788
<i>Shagunni</i>																	
Indigenes	0	0	0	0	11	9	9	3	2	0	0	0	2	11	9	1	57
Non-indigenes	0	0	0	0	0	0	8	4	0	0	9	0	9	10	5	0	45
Total	0	0	0	0	11	9	17	7	2	0	9	0	11	21	14	1	102
All stations	48	67	46	64	148	152	256	183	176	253	391	277	885	1366	1102	1090	6504

Table 6. Annual distribution of live births in health-care institutions around the Kainji Lake Area

	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	Total
National Electric Power Authority (New Bussa)	344	397	463	609	720	722	866	842	910	402	443	451	7169
General Hospital (New Bussa)	0	0	0	0	0	0	36	257	367	734	643	624	1661
Total	344	397	463	609	720	722	902	1099	1277	1136	1086	1075	9830

delivery facilities were few and scattered; and about 60% of the people in the Kainji Lake Area had not attended the nearby local dispensaries. Traditional healers were reported to treat the majority of non-attenders. In setting up the surveillance machinery on communicable diseases, the traditional healers should be encouraged to become members of the health team through which control of malaria, the commonest cause of childhood death, and other communicable diseases could be effected at the village level. Their practices should constantly be appraised with the objective of improving their services through training and indirect supervision.

The higher number of registered births of non-indigenes in New Bussa and Agwara came from the large labour force that settled in New Bussa after the construction of the Kainji Dam, and those employed on the irrigation project established jointly by the Kainji Lake Research Project, New Bussa and Kwara State Government, Ilorin in Agwara District after the Kainji Lake was formed in 1968. Clearly, the non-indigenes in this study had an earlier exposure to, and appreciated the value of, registration of births.

The registrars of births and deaths interviewed during the study were found to be unappreciative of the importance of registration of births and deaths as necessary tools for national planning. Apparently, no serious efforts were made to encourage the people to register their births, and no deaths were registered during the study period. In addition, only very few registration centres have been opened so far. This attitude to registration of births and deaths by the registrars and the different local governments could probably explain why the deliver-

ies in the hospital at New Bussa outnumbered the registered births from all the registration centres in the study area. The reverse should be the case, and to achieve this requires a thorough review and implementation of the laws on registration of births and deaths.

The data reported upon in this study were collected by Home Visitors. This system has been found to be very expensive to adopt by any Local Government and for Igboora in Oyo State of Nigeria by Ayeni and Olayinka [6]. Apart from the expensive nature of this system, the system would be difficult to extend to all the villages in the study area because of the distances between them over difficult terrain. Collard [7] described a unique system of compulsory registration of births and deaths in Katsina Emirate in Kaduna State, Nigeria, which was introduced by the Emir (a traditional chief) and his council in 1950. In this system, the Imams in each village acted as registrars. Each Imam, well versed in the Arabic language, who served as the religious leader, made returns to the District Headquarters where the data were transcribed. A similar system should be introduced to the Kainji Lake Area. If introduced, it will succeed because of the similarity in religious beliefs and cultures between the people of the Katsina Emirate and the Kainji Lake Area. Furthermore, the Muslim religion to which the majority of the people in the study area belong has always served as a useful unifying force among the various ethnic groups to co-exist and make intermarriages less stressful. The village Imams who were appointed as the registrars of births and deaths could also be trained in marriage counselling so that they could reduce the high divorce rate found in this study by providing marriage counselling to quarrelling couples.

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