

POPULATION STUDIES IN PAPUA NEW GUINEA

By John M. Stanhope

New Guinea and its associated islands were divided in the nineteenth century into three portions. The western portion is now West Irian, a province of Indonesia, following a lengthy period of Dutch colonial rule. The north-east portion was lost by Germany in the First World War and is now a U.N. Trust Territory under Australian control. The south-east portion, initially a British possession, is administered jointly with the U.N. Trust Territory. These two eastern territories are now known as Papua New Guinea (P.N.G.) This paper refers only to P.N.G. and does not include West Irian data.

Two Contrasted Regions: Hospital Data

The island region has had contact with the outside world for a century. Hospital experience approaches industrialised patterns in the spectrum of diseases treated. Village people have learned to make considerable use of hospital facilities, so that hospital data provide a reasonable reflection of community health problems.

The mountain region has had contact much more recently, areas being progressively contacted from forty years ago to the present time. Hospital data is a less reliable indicator of community trends.

Scragg⁶ has shown an increase in heart disease as a cause of hospital deaths, relative to other causes, for the period 1961-70. This trend is partly due to decreasing impact of bacterial diseases. In 1970, cardiovascular causes of death ranked fourth after cancer, tuberculosis and pneumonia in the island region hospitals, but were not among leading causes of death in the mountain region.

Campbell² described 2,000 admissions to the medical wards of the Port Moresby Hospital, in which only 0.9% of patients suffered cardiovascular diseases. These did not include a single case of coronary heart disease.

Hospital data suggests that coronary heart disease is therefore rare in the indigenous population of P.N.G.

Community Mortality Studies

Several rural populations were observed during the last decade to determine vital rates. These have been reported in a series of papers^{1, 3, 8, 12}. Though accurate information was lacking for many deaths, these reports indicated that cardiovascular deaths were uncommon, with only occasional cases attributed to congenital, rheumatic or coronary occlusive disease.

Blood Pressure Survey

Huizinga⁴ collated casual blood pressure surveys from around the world and standardised them for purposes of comparison by calculating the mean blood pressure for age 45 and the magnitude of blood pressure change with respect to age. His report includes six P.N.G. populations. In all six, males showed no significant increment of blood pressure with age. Two of the six female groups showed modest increment, the remaining four no significant increment.

Community Morbidity and Risk Factor Studies

Working with a mountain population, Sinnett⁷ has reported low serum cholesterol values and the virtual absence of obesity, hypertension, hyperglycaemia, angina and Q-wave abnormalities. Serum triglyceride values were however about 1.5 mMol. (compared with 0.5 mMol in Polynesian atoll reports).

Maddocks⁵, observing the day-to-day illnesses of a suburban village near Port Moresby, has noted the absence of cardiovascular disease.

My own studies in New Guinea have concerned the people of the lower Ramu River, in swampy terrain north of the main mountain chain.

The Ramu River People

Demographic records were developed over the years 1961-65 of three tribal groups, and have been maintained subsequently. The KIRE have a patrilineal social system and have had contact with outsiders since 1912¹¹, though this contact was tenuous until 1946. Young men customarily go out of the area to work for up to five years before establishing a conjugal home. Several family groups have settled in the nearest town, Madang. The BRERI have a matrilineal social system and had little contact before 1950. Some neighbouring villages of the RAO tribe, also matrilineal, are included because they are traditional marital and trading partners of the Breri^{9, 10}.

Three study groups are being followed for morbidity and mortality data, Rao-Breri rural, Kire rural and Kire urban. Life in the valley is dominated by the river, its tributaries and swamps. The Rao-Breri and some Kire villages are on waterside sites, but the main Kire villages are on low hills. Population densities are low. 10-20/sq. Km. Food is abundant. The staple carbohydrate source is the sago palm which gives a high return in calories per man-hour of labour, so that surplus time is available for hunting, fishing and social activities. Fruits, root vegetables, greens and coconuts are grown to supplement sago.

The Madang migrants form a close-knit community and maintain strong links with the home villages. Living conditions are crude as most Kire migrants are low-income workers. Sago is expensive in Madang, and is substituted by rice and market produce.

Risk Factors

The diet of the Ramu people is varied, as sago, vegetables, fruit, fish and meat are all used regularly. Coconuts while supplying highly saturated fats are used sparingly. Salt was formerly obtained from coastal villages in traditional trade, and is now freely purchased in mission-operated trade stores. Small quantities of sugar, biscuits and canned meat and fish are also bought, the necessary money being mostly earned from the sale of crocodile skins and timber.

Obesity is seen only in adolescent girls who are systematically fattened prior to marriage. Food is freely available, but most villagers eat only one meal per day. Betel nut is chewed by most adults and is believed to allay hunger.

Villagers smoke home-grown leaf in loosely-rolled cigarettes without inhaling. Urban migrants prefer packet cigarettes, but limited income keeps consumption low.

Blood Pressure

Casual blood pressure was recorded in August-September 1972 in a sample of 603 subjects. The prevalence of frank hypertension, systolic ≥ 160 mm. Hg. and/or diastolic fourth phase ≥ 95 mm. Hg., was only 2%.

Coronary Heart Disease

No myocardial infarction has been observed in the population of 3,000-4,000 subjects observed 1962-72, though a classical myocardial infarction death occurred in 1961 before the demographic base was defined.

Organic Heart Murmurs

In 3,214 subjects examined in 1972, five had mitral murmurs ascribed to rheumatic heart disease, five had murmurs consistent with congenital heart disease and four had aortic ejection murmurs. Thus the prevalences of rheumatic and congenital heart lesions were both about 2/1,000.

Congestive Cardiac Failure

Four persons were observed to be in cardiac failure. It was possible to investigate one, a middle-aged male, who was found to have 4 gms. haemoglobin per 100 ml. blood, on a basis of chronic malaria, hookworm infestation, iron deficiency and recent traumatic haemorrhage.

Varicose Veins

37 affected persons were seen in 3,214 subjects, a prevalence rate of 1%. Nearly all were middle-aged or elderly males. The condition was bilateral in eight, one of whom had gross varicosities with ulceration.

SUMMARY

Cardiovascular diseases are currently at low prevalence levels in Papua New Guinea. Coronary risk factors are beginning to increase in the growing urban population but are still of little importance in rural communities.

REFERENCES

1. Becroft T. C., Stanhope J. M. and Burchett P. M.: "Mortality and Population Trends Among the Kyaka Enga, Baiyer Valley." *Papua and New Guinea Medical Journal*, 12, 2, 48-48, June 1969.
2. Campbell C. C. and Arthur R. K.: "A Study of 2000 Admissions to the Medical Ward of the Port Moresby General Hospital." *Medical Journal of Australia*, 1, 989-992, 1964.
3. Dowell M. and Stanhope J. M.: "Mortality and Population Trends, Oro Bay, Northern Papua." *Papua and New Guinea Medical Journal*, 13, 4, 132-136, December 1970.
4. Huizinga J.: "Casual Blood Pressure in Populations," in "Human Biology of Environmental Change." International Biological Programme Human Adaptability Conference, Blantyre, Malawi, 1971.
5. Maddocks I.: "Studies of Melanesians in Fiji and New Guinea." W.H.O. Meeting of Investigation, Cardiovascular Epidemiology in the Pacific, Wellington, New Zealand, 1970.
6. Scragg R. F. R.: "The Eyes of the Crocodile." Inaugural Lecture, Foundation Professor of Social and Preventive Medicine, University of Papua New Guinea, 1971.
7. Sinnett P. F.: "A Survey of Coronary Artery Disease in a New Guinea Highland Population." W.H.O. Meeting of Investigation, Cardiovascular Epidemiology in the Pacific, Wellington, New Zealand, 1970.
8. Stanhope J. M.: "Mortality and Population Growth—Losuia Area, Kiriwina, Trobriand Islands." *Papua and New Guinea Medical Journal*, 12, 2, 42-47, June 1969.
9. Stanhope J. M.: "Patterns of Fertility and Mortality in Rural New Guinea," Chapter 2 in "People and Planning in New Guinea". *New Guinea Research Bulletin*, 34, 24-41, April 1970.
10. Stanhope J. M.: "Clan and Totem in Rao Society." *Oceania*, 41, 2, 114-135, December 1970.
11. Stanhope J. M.: "The Language of the Kire People, Bogia, Madang District, New Guinea." *Anthropos*, 67, 49-71, 1972.
12. Sturt R. J. and Stanhope J. M.: "Mortality and Population Pattern of Anguanak." *Papua and New Guinea Medical Journal*, 11, 4, 111-117, December 1968.