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Chapter Five: Analysing Health and Education

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ABSTRACT

Chapter Five presents two important aspects of any socioeconomic studies, i.e. health and education. The health study refers specifically to dental health of Sarawak school children in Simanggang and Miri between August 1960 and May 1971. Analysis were made of dental caries by sex, age groups, ethnicity and geographical areas. Included also is a methodological study on the collection and usage of fertility and mortality statistics; reviewed are the vital registration system, direct approaches, multi-round survey and indirect techniques. Chapter five ends with a study on concept, rate and trend of literacy in Sarawak, analyses between 1947 and 1980 by ethnic group, strata, age-group, sex and compared with Peninsular Malaysia and Sabah.

CHAPTER FIVE

Analysing Health and Education

SUMMARY

Chapter Five presents two important aspects of any socioeconomic studies. i.e. health and education. The health study refers specifically to dental health of Sarawak school children in Simanggang and Miri between August 1960 and May 1971. Analysis were made of dental caries by sex, age groups, ethnicity and geographical areas. Included also is a methodological study on the collection and usage of fertility and mortality statistics; reviewed are the vital registration system, direct approaches, multi-round survey and indirect techniques. Chapter five ends with a study on concept, rate and trend of literacy in Sarawak, analyses between 1947 and 1980 by ethnic group, strata, age-group, sex and compared with Peninsular Malaysia and Sabah.

5.1 Dental Epidemiological Surveys of Sarawak School Children

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SYNOPSIS

The 1970 Simanggang and the 1971 Miri dental surveys reveal the following four general characteristics:

1. In respect of deciduous teeth, the incidence is higher among the males than among the females; in respect of permanent teeth, however, the males are better off. This is consistent in both the Simanggang and Miri data.
2. The prevalence of dental caries in permanent teeth becomes higher as one advances to the older age groups, the incidence being highest in both towns at the Form 5 level.
3. Racial comparisons indicate that, while the Chinese are better off in respect of deciduous teeth, the other races generally have lower prevalence of dental caries in respect of permanent teeth for both of the towns under study.
4. Analysis of geographical variations in the prevalence of dental caries indicate that in respect of both deciduous and permanent teeth, the incidence is lower in Simanggang than in Miri, possibly reflecting the influence of fluoridation in Simanggang; of course, the extent of this and other environmental influences may be assessed in future studies.

INTRODUCTION

The dental public health service in Sarawak is a comparatively young service. There are a total of nineteen graduate dentists in this service at end of 1972, and of these only one has had post-graduate dental public health training. However, the need for properly conducted dental surveys to provide oral health data for planning and evaluation has been felt for a long time. The Dental Section of the Sarawak Medical and Health Department conducted two dental surveys in 1960, and another two in 1970 and 1971; all these four

dental surveys were conducted with whatever resources that were available at the particular time within the State. The three surveys of school children in Simanggang were done in August, 1960, December, 1960 and September, 1970 while the one in Miri was done in May, 1971.

SARAWAK

Sarawak is one of the 13 component states of Malaysia. Officially, Sarawak, together with the state of Sabah, are referred to as East Malaysia, while the other eleven states in the peninsular portion of Malaysia are collectively referred to as West Malaysia.

Malaysia covers a total area of approximately 130,000 square miles; Sarawak alone covers approximately 48,050 sq. miles. It lies on the North Western coastal area of the island of Borneo, covering a little less than one-sixth of the total area of the island, which is the third largest island in the world. The boundary between Sarawak and Indonesian Borneo follows the water-shed between the rivers flowing generally north-westerly into the South China Sea and those flowing into the Celebes and the Java Seas. The State consists of an alluvial coastal plain and a belt of undulating country separating this plain from the sharply rising mountainous interior ranges. Here rivers flow fast through deep gorges and numerous rapids until they reach the undulating country and the coastal plains, whence they meander towards the sea.

For administrative purposes, Sarawak is divided into five Divisions, each division being headed by a Resident who has his office in the Divisional capital town. Simanggang is the capital town in the Second Division, while Miri is the capital town in the Fourth Division. The 1970 Population Census of Malaysia revealed that Sarawak had a population of 975,918 composed of 39.6% Dayaks, 18.7% Malays, followed by 10.6% other natives, consisting of Melanaus and other indigenous people. Next to the Dayaks, in terms of numbers, were the Chinese, accounting for 30.1% of Sarawak's population. The "Others" consisting of non-natives accounted for only 1.0% of the population. Racial breakdowns for the two survey towns are also tabulated below.

Sarawak Population by Community Groups

Community	Sarawak		Simanggang Town		Miri Town	
	Persons	Percentage	Persons	Percentage	Persons	Percentage
Total	975,918	100.0	8,445	100.0	35,702	100.0
Dayaks	386,260	39.6	1,761	20.9	2,986	8.3
Malays	182,709	18.7	2,943	34.9	9,311	26.1
Other Natives	103,194	10.6	27	0.3	2,600	7.3
Chinese	294,020	30.1	3,643	43.1	20,059	56.2
Others	9,735	1.0	71	0.8	746	2.1

Source: 1970 Population and Housing Census: Community Groups, Departments of Statistics, Kuala Lumpur, Malaysia. (Pages 1, 18, 19)

FLUORIDATION IN SARAWAK

The treated public water supplies of Sarawak are adjusted to a fluoride content of 0.7 parts per million. The first treated supply to be so adjusted was the Simanggang Water Supply, where Fluoridation was first introduced on the 19th November 1961, while fluoridation of the Miri supply was effectively commenced in April 1972, one of the latest to be treated. It is estimated that approximately 250,000 people in Sarawak are provided with fluoridated water from public treated supplies.

SURVEY OBJECTIVES

The objectives were:

- 1) To determine the prevalence of dental caries in Sarawak School Children, of various ethnic origins.
- 2) To determine the need for any further research into
 - a) Environmental influences on dental disease prevalence.
 - b) Cost/benefit relationship of fluoridation of public water supplies.
 - c) Geographical variations in dental disease patterns.
 - d) The utilization of dental personnel in terms of prevalence of

diseases and the treatment needs, to assist in future expansion, planning and evaluation of the Dental Service.

(1) MATERIALS AND METHODS

For the first two surveys conducted in August 1960 and December 1960 in Simanggang, a well-defined area of "Limit of Supply", which included the bazaar (township) and the near suburbs, was delineated for the introduction of treated water supply to the town. This area was used as the survey area; every child born and resident within the area up to the time of the survey was included in the survey. The 1970 Simanggang survey and the 1971 Miri survey were conducted by using the random sampling technique. A unistage stratified sampling design was adopted, the strata being in the classes in the primary and secondary schools. In Simanggang a 20% sample of all students in the school was selected and allocated in the same proportion to each of the strata. In Miri, a 15% sample of all students was similarly selected. The number of students in the Miri and Simanggang samples is graphically illustrated by racial composition in the two diagrams below:

NO. OF STUDENTS IN SIMANGGANG AND MIRI SAMPLES BY RACE

SIMANGGANG 1970 TOTAL SAMPLE 608

