

ANEMIA IN REMOTE INTERIOR COMMUNITIES IN SARAWAK, MALAYSIA

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Abstract. A cross-sectional survey of 365 individuals, (51.9% males, 48.1% females; ages 5-85 years), from five remote interior communities in upper Rejang River basin Sarawak, Malaysia, found 24.4% were anemic. The range and mean of Hb concentration in male and female were: 7.2-17.0 mg/ml and 13.7 mg/ml and 7.9-15.7 mg/ml and 12.9 mg/ml respectively. Amongst the five tribes surveyed, the prevalence of anemia (range: 10.6-46.7%), was higher among the Penans (46.7%), Kenyahs (31.1%), Kajangs (27.8%) and Kayans (19.3%), than amongst the Ukits (10.6%). Anemia is more common among males > 40 years and among adolescents and young reproductive females, as well as elderly females > 61 years old. Of the 83 anemic individuals, 6.0% and 3.6% had *Trichuris trichiura* or hookworm respectively; however there is no clear association with intestinal worm infection.

INTRODUCTION

Anemia is a common health problem worldwide with an estimated 30% of the world's population being anemic (WHO, 2001a). This hematological disorder is prevalent in many poor rural and peri-urban communities, particularly those in the poorer developing countries, where it is one of the commonest causes of ill health (Ahmed, 2000). Its prevalence is most common among young children, adolescents and women of child-bearing age (Adish *et al*, 1999; Kuizon *et al*, 1982; Quintas *et al*, 1997). In developing countries its high prevalence is usually associated with various causes; such as malnutrition, of which, the root cause is poverty (Murila *et al*, 1999).

In West Malaysia, anemia was highly prevalent (> 65%) in some of the poorer rural areas in the 1960s, but in recent years, it has declined to about 30% (Tee *et al*, 1999). Pockets of high prevalence, usually associated with high parasitemia, poor nutrition and multiple pregnancies are, however, still found in some

rural areas (Shahar *et al*, 1999). In Sarawak, Malaysia, the prevalence of anemia among the rural Ibans, coastal Malays and nomadic Penans in the late 1970s ranges from 20-35% (Anderson, 1978), however its current prevalence in poor remote communities is undetermined.

In the present study, the prevalence and distribution of anemia in five remote interior communities in upper Rejang River, Sarawak, Malaysia, was investigated, as part of a public health impact assessment of the proposed US\$ 3 billion Bakun hydroelectric project (BHEP) development.

MATERIALS AND METHODS

The remote upper Rejang River basin in Sarawak, was selected for this study, because the area is undergoing large-scale human ecological changes brought about by the proposed US\$3 billion BHEP development (Sagin *et al*, 2000). The area is sparsely inhabited (population ~10,000) by seven interior tribes in 16 villages along the Murum, Linau and Balui River valley. Seven villages were selected for this study, as they are relatively

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