

**Prevalence and risk factors of geohelminthiasis among the rural village children in Kota Marudu, Sabah, Malaysia**

**ABSTRACT**

Geohelminthiasis is a worldwide problem, especially in low-income countries. Children from rural areas and those living in poverty, lacking basic health amenities and having poor environmental sanitation are likely to be affected. Adverse effects such as anemia, protein malnutrition, colitis are common which can affect both the children's physical and mental growing development. A cross-sectional study on geohelminthiasis was conducted among children from 238 households in 13 villages in Kota Marudu of northern Sabah, East Malaysia. The study involved interviewing villagers using questionnaires to collect demographic and socio-economic data, getting faecal samples from the children, collecting soil samples and identifying parasite eggs with microscopy and molecular methods. A total of 407 children (6 months-17 years old) enrolled in the study. Geohelminthiasis was detected in the faecal samples of children from 54% (7/13) of the villages with mean prevalence of infection per village of 9.0% (0%-34.9%). On a household basis, 18% (43/238) of the households sampled had infected children, with mean prevalence rate per household of 11% (0%-43%). The prevalence was for *Ascaris lumbricoides*: 9.6% (39/407), *Trichuris trichiura*: 2.7% (11/407) and hookworms (*Necator americanus* and *Ancylostoma* sp.): 2.7% (11/407). The overall mean infection rate of the children examined was 14.3%. Significantly higher prevalence was recorded for the children of mothers who did not have any formal education ( $p = 0.003$ ); household income of less than USD119 (RM500) ( $p < 0.001$ ); children from homes without proper sanitation facilities ( $p < 0.001$ ); children who usually go about barefoot ( $p < 0.001$ ) and not washing feet before entering the house ( $p = 0.017$ ). Soil samples were found to have geohelminth eggs or larvae which could be due to unhygienic sanitation practices. This study shows the geohelminthiasis is prevalent in the villages, and the risk factors are lack of maternal education, low income, poor sanitation facilities and irregular deworming practice. Expanding deworming coverage in the study region may help reduce the worm infections in these communities, so that the mental and physical development of the children would not be affected by geohelminthiasis. The data on the prevalence of geohelminthiasis in this study would contribute to better public health monitoring and operation to reduce the infection in rural areas.