A35 Nutritional status, iron status and cognitive performance in children from Ranau, Sabah

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The objective of this study was to investigate cognitive performance, blood haemoglobin levels, helminthic infestations in children aged 6 months to 12 years in the district of Ranau, Sabah which is home to the UNESCO World Heritage Site. It is well established that low blood haemoglobin levels were associated with less optimum cognitive performance. Eligible participants and their parents from eight villages: Nalapak, Perancangan, Kauluan, Pinawantai, Kiwawoi, Toboh Baru, Tamalang and Lingkudau were invited to participate. Informed consent was obtained prior to their participation. A total of 157 participants provided anthropometric measurements and dietary data, out of which 30 participants (19%) also provided one finger prick haemoglobin measurement and one stool sample. Cognitive performance was assessed using a Draw-A-Person-Intellectual-Ability Test for children which was conducted online due to covid-19 mitigation considerations. Findings showed that 20% of children had BMI-for-age <-2SD (thinness), 15.6% overweight and 17.3% obese. They were more study participants who were thin, overweight, and obese compared to a nationally representative study of Malaysian children (Nik Shanita *et al.*, 2018). A preliminary analysis of food group intake showed that all children consumed fruits and vegetables, rice, meat / poultry / fish every day. Mean haemoglobin was 11.6±1.4g/dL, which was on the lower range for young children. Higher haemoglobin levels showed a positive trend with better cognitive performance, however the association was not statistically significant (r_s=0.22, p=0.243). 100% of participants were infected by *Ascaris lumbricoides* and 20% by hookworms. Future work will involve other villages in the district, nutrient intake analysis, and prevalence of diarrhoeal diseases and their association with nutrition status. The findings of this study shall form the basis for policy recommendations for sustainable development in a geopark area. This study was funded by UMS Grant SDK0097-2019.