

## **Sociodemographic, nutritional, and environmental factors are associated with cognitive performance among Orang Asli children in Malaysia**

### **ABSTRACT**

Children aged 2 to 6 years are in a crucial period of growth development, during which it is important for them to attain specific cognition related to concentration and attention so that they can perform well in school later in life. Various factors influence children's cognition during this crucial period. However, to date, only a limited number of studies have examined the cognitive performance of underprivileged children living in poverty, particularly indigenous children (also known as Orang Asli children in Malaysia). Therefore, this cross-sectional study aimed to determine the associations between sociodemographic factors, nutritional factors (body composition and hemoglobin), and environmental factors (home environment and parasitic infections) with cognitive performance among Orang Asli children in Negeri Sembilan, Malaysia. The participants were 269 children (51% boys, 49% girls) aged 2 to 6 years ( $M = 4.0$ ,  $SD = 1.2$  years) and their mothers, from 14 Orang Asli villages. Face-to-face interviews were conducted with the mothers, and the children's cognitive performance, operationalized as working memory index (WMI), processing speed index (PSI), and cognitive proficiency index (CPI), was assessed using the Wechsler Preschool and Primary Scale of Intelligence, Fourth Edition (WPPSI-IV). The children's weight and height were measured, and their blood and stool samples were collected to assess hemoglobin level and parasitic infections, respectively. Multiple linear regression analysis showed that the father's years of education ( $\beta = 0.262-0.342$ ,  $p < 0.05$ ), availability of learning materials at home ( $\beta = 0.263-0.425$ ,  $p < 0.05$ ), and responsiveness of the parent to the child ( $\beta = 0.192-0.331$ ,  $p < 0.05$ ) were consistently associated with all three cognitive indices (WMI, PSI, and CPI). A holistic approach involving parents, communities, and government agencies should be established to improve the cognitive performance of these underprivileged children.

**Keyword:** Orang Asli; Growth development; Underprivileged children