Children born into poverty show key differences in early brain function, according to new research from the University of East Anglia (UEA).

Researchers studied the brain function of children aged between four months and four years in rural India and found that children from lower income backgrounds, where mothers also had a low level of education, had weaker brain activity and were more likely to be distracted.

Study in U.P.
The team carried out the study in Uttar Pradesh, the highly populated region in India.

Lead researcher John Spencer from UEA’s School of Psychology said: “Each year, 250 million children in low and middle income countries fail to reach their developmental potential. Therefore, there is a growing need to understand the global impact of poverty on early brain and behavioural development.”

He explained that previous work has shown that poverty and early adversities significantly impact brain development, contributing to a vicious cycle of poverty. But few studies have looked at brain function early in development.

“We wanted to find out more about the functional brain development of children born into poorer backgrounds to see why many do not reach their full potential,” he said.

Using a portable ‘functional near infrared spectroscopy’ (fNIRS) device, they measured the brain activity of 42 children aged between four months and four years in rural settings.

They investigated the children’s ‘visual working memory’ – or how well they are able to store visual information and detect changes in the visual environment when they occur.

The results of the study were compared with children from families in Midwest America.

The research team found that the children in India from families with low maternal education and income showed weaker brain activity and poorer distractor suppression in the left frontal cortex area of the brain that is involved in working memory.