

## **Comparing fluid intelligence of children with similar socioeconomic status in urban and rural areas: A case control study.**

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### **Background**

In Taiwanese society, the index of socioeconomic status and cram schooling culture are relatively homogeneous. However, the allostatic load is different in Taiwanese urban and rural areas. Previous research demonstrated that the relationship between disadvantage of socioeconomic status and children's intelligence assessment, especially in the ability of working memory. Fluid intelligence is defined as a biological ability of brain and not dependant on experience. Therefore, very few publications are available in the literature that address the issue of fluid intelligence and environment, especially in the difference of urban and rural areas.

### **Aims & Objectives**

The aim of this study is to propose that the relationship between heavy allostatic load in urban and poor performance in fluid intelligence assessment.

### **Methods**

This study recruits 40 children from urban and rural areas with similar annual income of parents. Fluid intelligence is measured by the performance subtasks on the Wechsler Intelligence Scale for Children (WISC). These 40 children were under case-matching controlled and divided into urban group and rural group by the population density of the living district. Age, sex, and socioeconomic status were controlled as case-matching factors.

### **Results**

In the group of children living in urban area, poor performance in the working memory index (WMI) and processing speed index (PSI) were reported with significant difference. In addition, our results suggested no significant difference in the verbal comprehension index (VCI) and perceptual reasoning index (PRI) between urban group and rural group.

### **Discussion & Conclusion**

This study demonstrated significant difference in fluid intelligence between children with similar socioeconomic status living in urban and rural area. This result suggested the environment, especially in allostatic load, is associated with the assessment of fluid intelligence. This study suggested one of the future direction of fluid intelligence assessment design.