

## Abstract

**COGNITIVE DEVELOPMENT OF THAI CHILDREN**

*Nichara Ruengdaraganond, and the Holistic Development of Thai Children Study Group*

**Introduction**

Children's cognitive development has its fundamental ground starting from the perinatal period influencing mainly by genetic and other biological factors. As the children grow up, many environmental factors, including child rearing and learning experience, has shaped up their developmental trajectory. In Thailand, there had not been any nation-wide survey to study how child-rearing practice in Thai context has affected the children's intellectual potential before.

**Objectives**

1. To assess the cognitive development of Thai children and adolescents aged 1 to 18 years.
2. To study the correlation between the children's cognitive development and affecting factors, mainly child rearing practice.

**Methods**

1. In 2001, The Holistic Development of Thai Children Study Group conducted the nation-wide survey of Thai children aged 1-18 years and their families enrolled by a four stage stratified random sampling.
2. 9,488 children were categorized into 4 age groups; 1,571 children aged 12-35 months, 1,585 children aged 36-71 months, 3,178 children aged 6-<13 years, and 3,174 children aged 13-18 years.
3. Data collected included children's weight and height, family profile, child-rearing practice.
4. Children were assessed their cognitive function by using several screening tools shown as followed.
  - 12-35-month-old children were assessed by using a screening developmental test called Capute Scales (CAT/CLAMS).

- 36-71-month-old children were assessed by using 2 drawing tests (Draw-A-Person and Gesell figure) and a pragmatic language test.
- A screening intelligence test called TONI (Test of Non-verbal Intelligence, third edition) was administered to all 6-18 year olds. The group of 6-<13 years also took a naming (vocabulary) test.

## Data analysis

### Descriptive and logistic regression analysis

## Results

Most of the children had developmental status below the normal reference used in the western society. During the first few years of early childhood period, Thai children's development was commensurate with their chronological age referring to the western standard. As the children are older, their cognitive development was more behind. The details in each age group are as followed.

The total 1,437 12-35-month-old children, who were tested, had the mean developmental quotient of 100.5 (standard deviation of 14.3). The mean score of the language part was 101.7 (standard deviation of 18.3), and the mean score of the adaptive part was 99.4 (standard deviation of 15.7). While 20.6 % of the children were developmentally delayed and questionably delayed, 23.6 % were developmentally advanced and probably advanced.

The total 1,149 36-71-month-old children, who were tested, had the mean developmental quotient from the Draw-A-Person Test of 111.5 (standard deviation of 20.5), and from the Gesell figure drawing of 91.1 (standard deviation of 22.7). Because there is no normal reference of the pragmatic language test, this skill could not be evaluated. However, the language scores had statistically significant correlation with the drawing scores, more with the Gesell figure ( $r= 0.27$ ) than with the Draw-A-Person test ( $r= 0.06$ ).

The total 3,135 6-12-year-old children, who were tested, had the mean intellectual quotient (IQ) of 88.0 (standard deviation of 12.6). While 64.0% of the children had IQ less than the normal range (90), only 6.4% had IQ above the normal

range (110). The language skill assessed the rapid naming had statistically significant correlation with the IQ ( $r= 0.2$  for the animal category and  $0.1$  for the fruit category). The mean score of the total vocabulary was 23.9 (standard deviation of 7.4). The children could name animals more than fruits.

By using multiple regression analysis, mother's education and family income were found to significantly correlate with children's developmental quotient and intelligence quotient in all age groups. In addition, the total number of children in each family was a significant contributing factor only in the early childhood period. Other factors that had significant correlation with children's cognitive function in the group of 12-35 month olds included child rearing practice relating to early intervention for mental development, parent's marital status, mother's occupation, and home environment. In school age and early adolescent groups, the number of hours watching television and caregivers were also found to be contributing factors with statistical significance.

### **Conclusion**

Most of the 8,871 children aged 1-18 years, who were administered screening intelligence tests, had scores below average. As the children were older, the scores were decreasing. Mother's education and family income were only two factors that had significant correlation with children's development in all age groups.