

# Potential interaction effect on attention-deficit/hyperactivity disorder between mother's educational level and preschoolers' dietary pattern

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## Objective:

To explore the interaction effect between mother's educational level and preschoolers' dietary pattern on attention-deficit/hyperactivity disorder (ADHD).

## Methods:

In 2014, there were 16 439 children aged 3-6 years old from 91 kindergartens in Ma'anshan municipality of China. A semi-quantitative food frequency questionnaire and the 10-item Chinese version of the Conners' Abbreviated Symptom Questionnaire (C-ASQ) were administered to assess the usual dietary intake and symptoms on ADHD. Social-demographic information was collected through questionnaires. Unconditional logistic regression was used to analyze the multiplication interaction effect between mother's educational level and preschoolers' dietary pattern on ADHD. Excel software was used to analyze the additive interaction effect of mother's educational level and preschoolers' dietary pattern on ADHD.

## Results:

Results showed that factors as: mother's low educational level [aOR=1.31 (1.13-1.52)], scores related to preschoolers in the top quintile of "food processing" [aOR=1.31 (1.16-1.48)] and "snack" [aOR=1.45 (1.29-1.63)] patterns showed greater odds while preschoolers in the top quintile of "vegetarian" [aOR=0.80 (0.71-0.90)] showed less odds for having ADHD symptoms. Both multiplication and additive interactions were observed between mothers with less education. The processed dietary patterns (OR=1.17, 95%CI: 1.11-1.25), relative excess risk of interaction (RERI), attributable proportion (AP) and the interaction index (SI) appeared as 0.21, 0.13 and 1.47, respectively. Multiplication interaction was observed between levels of mother's low education and the snack dietary pattern (OR=1.21, 95%CI: 1.14-1.29), with RERI, AP and SI as 0.49, 0.26 and 2.36, respectively. However, neither multiplication interaction or additive interaction was noticed between levels of mother's low education and the vegetarian dietary pattern (OR=0.97, 95%CI: 0.92-1.03), with RERI, AP and SI as 0.09, 0.05 and 1.15, respectively.

## Conclusions:

Levels of mother's low education presented a risk factor for ADHD symptoms in preschool children. Both multiplication interaction and additive interaction were observed between mother's low education levels and the processed dietary pattern. Multiplication interaction was noticed between mother's education levels and the snack dietary pattern but not with the vegetarian dietary pattern.