Influences of biological risk at birth and temperament on development at toddler and preschool ages

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Abstract

Purposes This study aimed at investigating: (1) the effects of temperament and biological risk at birth on various developmental domains at toddler and preschool ages; (2) the interaction effects of the biological risk and temperament on development.

Participants One hundred and ten full-term and 98 preterm children without significant physical or developmental disabilities and consisting of various biological risks were examined at toddler age (18–36 months) and preschool age (51–67 months).

Methods The Neonatal Medical Index was used to classify the biological risk level. Parental reports on the Chinese Toddler Temperament Scale at toddler age were collected and the temperament (easy, intermediate and difficult) of each child was assigned according to local norm. The Comprehensive Developmental Inventory for Infants and Toddlers was used for assessing child development at toddler and preschool ages. Other family variables were also collected as possible confounders for child development. Two-way ANCOVA was conducted to analyse the predictability of biological risk and temperament, by controlling the potential family variables on child development.

Results At toddler age, higher biological risk had significant adverse effects on both the Perceptual-motor developmental quotients (DQs) ($F_{XX} = 19.4, P < 0.001$) and Social-adaptive DQs ($F_{XX} = 22.5, P < 0.001$), while easy temperament had positive effects only on the Social-adaptive DQs ($F_{XX} = 7.7, P < 0.01$). At preschool age, none of the two factors had effects on DQs of the Comprehensive Developmental Inventory for Infants and Toddlers. There were no significant interactions between biological risk and temperament on DQs at both ages.

Conclusion The biological risk and temperament affect child development at toddler age but not at preschool age. No interaction of biological risk and temperament effects on the child development at toddler age existed. The effects of biological risk and temperament on child development were temporary for the children with relatively low biological risk.