International Journal of General Practice Nursing, 2026, Volume 4, Issue 1
https://ojs.bbwpublisher.com/index.php/IJGPN
ISSN Online: 2981-9423
ISSN Print: 2981-9415

The Impact of Early Family Nurturing Environments on the Intellectual and Behavioral Development of Preschool Children

Qian Zheng[1], Dongli Zhang[2]*

[1]Department of Pediatrics, Affiliated Hospital of Hebei University, Baoding 071000, Hebei, China
[2]Department of Integrated Traditional Chinese and Western Medicine, Affiliated Hospital of Hebei University, Baoding 071000, Hebei, China

**Author to whom correspondence should be addressed.*

Abstract: *Objective:* To investigate the specific effects of early family nurturing environments on intellectual development and behavioral issues in preschool children aged 3–6 years, providing evidence-based support for early family intervention and child health care. *Methods:* This study investigated the early developmental processes of 300 children aged 3–6 years enrolled in the child health department of a community health service center from January 2024 to December 2025. The Family Nurturing Environment Questionnaire for Children Aged 3–6 was used to assess the family nurturing environment. The Wechsler Preschool and Primary Scale of Intelligence, Fourth Edition (WPPSI-IV) Chinese Version and the Achenbach Child Behavior Checklist (CBCL) were used to assess children's full-scale IQ (FSIQ) and behavioral development levels. *Results:* A total of 300 valid questionnaires were collected. Among them, 163 children scored $\geqslant$ 85 on the family nurturing environment scale (high-quality nurturing environment group), while 137 children scored $<$ 85 (general environment group). Children in the high-quality environment group demonstrated significantly higher FSIQ totals than those in the average environment group, with all differences statistically significant ($P < 0.05$). Scores in the externalizing behavior domain, internalizing behavior domain, and competence domain were higher in the high-quality environment group, while scores in the dysregulation domain were lower, all differences statistically significant (all $P < 0.05$). *Conclusion:* The family nurturing environment significantly influences children's early intellectual development and behavioral growth. It is recommended that relevant parents continuously enrich appropriate learning stimuli in home education, utilize positive and sensitive parent-child interactions, and adopt warm and accepting parenting styles to enhance children's cognitive abilities and promote their positive behavioral development.

Keywords: Children; Family nurturing environment; Early development; Intelligence; Behavioral development

Online publication: March 12, 2026

1. Introduction

The family constitutes the earliest and most fundamental developmental environment for children. The material support, educational guidance, emotional nurturing, and motivational approaches provided collectively form the core essence of the early family nurturing environment, playing an irreplaceable role in children's physical and mental development [1]. During early childhood development, as the nervous system differentiates and matures, behavioral patterns gradually take shape under the continuous influence of the family environment. The core cognitive elements of intellectual development and the social adaptability traits of behavioral development are both closely linked to multiple dimensions of the family nurturing environment [2]. Current research confirms that parental parenting styles, quality of parent-child interactions, and family material conditions significantly influence children's intellectual development levels, social interaction abilities, emotional regulation capabilities, and behavioral norms formation [3]. To elucidate the specific mechanisms through which early family nurturing environments influence the intellectual and behavioral development of preschool children, and to provide theoretical support for optimizing family nurturing practices and promoting children's healthy growth, this study systematically investigates the effects of early family nurturing environments on the intellectual and behavioral development of preschool children. The research findings are reported as follows:

2. Data and methods

2.1. General information

A total of 300 children aged 3–6 years enrolled in the child health department of a community health service center from January 2024 to December 2025 were included in the study. Among them, 158 were boys and 142 were girls. Age distribution: 162 children (54.0%) aged 1–2 years, 138 children (46.0%) aged 2–3 years; weight ranged from 9.45 to 14.35 kg, with a mean of 12.15 ± 1.02 kg.

Inclusion criteria: (1) Age 3–6 years, meeting the definition for early preschool children; (2) No adverse birth history (asphyxia, preterm birth, low birth weight) at birth; no congenital malformations, genetic metabolic disorders, or central nervous system diseases;(3) Primary caregiver was a parent or stable family member residing long-term in the community, capable of cooperating throughout the study and follow-up; (4) Caregiver provided informed consent and signed a consent form.

Exclusion Criteria: (1) Children with severe physical illnesses or signs of mental retardation; (2) Recent history of severe infection, trauma, or surgery that may affect cognitive and behavioral assessments; (3) Unstable household address preventing follow-up completion; (4) Caregivers refusing participation or unable to cooperate with survey requirements.

2.2. Methods

Researchers received standardized training prior to the survey to ensure consistent scale administration and data collection procedures. Primary caregivers completed the "Home Nurturing Environment Questionnaire for Children Aged 3–6" through face-to-face interviews. This questionnaire assessed the home nurturing environment across dimensions, including emotional warmth/atmosphere (11 items), social adaptation/self-care (13 items), language/cognitive development (10 items), and neglect/punishment (7 items). Cognitive Information (10 items), Neglect/Punishment (7 items), and other dimensions. A 5-point Likert scale was used, with scores ranging from 1 (Never) to 5 (Always), and some items required reverse scoring. Specific

evaluations were determined based on the percentile rank of each factor score (⩾ 85 indicates a high-quality home nurturing environment, ＜ 85 indicates an average nurturing environment). The Chinese version of the Wechsler Preschool and Primary Scale of Intelligence, Fourth Edition (WPPSI-IV) and the Achenbach Child Behavior Checklist (CBCL) were administered to individually assess children's Full Scale Intelligence Quotient (FSIQ) and behavioral development levels. FSIQ ranges from 40 to 160 points. Scores of 130 and above indicate extremely superior intelligence, 120–129 indicate superior intelligence, 110–119 indicate above average, 90–109 indicate average, 80–89 indicate below average, 70–79 indicate borderline, and below 70 indicates extremely low. Behavioral development levels are categorized into externalizing behaviors, internalizing behaviors, dysregulation, and competencies. Each domain is scored 0–2 points, with higher scores indicating better emotional and social development. All assessments are independently conducted by two senior pediatricians, with disagreements resolved through discussion to reach consensus.

2.3. Statistical methods

Data processing and analysis were performed using SPSS 25.0 statistical software. Quantitative data are expressed as mean ± standard deviation (Mean ± SD). Qualitative data are presented as counts (percentages) [n(%)]. Pearson correlation analysis was used to examine the relationship between each dimension of the home nurturing environment and developmental levels. Independent samples t-tests were used to compare intelligence scores and behavioral development scores between the two groups of children. A P value ＜ 0.05 was considered statistically significant.

3. Results

3.1. Correlation analysis between children's home nurturing environment and developmental levels

All 300 child guardians in this study completed the Child Family Nurturing Environment Scale assessment. Based on total scale scores and composite scores across dimensions, 163 children scored ⩾ 85 on the Family Nurturing Environment Scale and were assigned to the high-quality family nurturing environment group. The remaining 137 children with total scale scores ＜ 85 were assigned to the average environment group.

3.2. Comparison of FSIQ scores between the two groups

Children in the high-quality nurturing environment group demonstrated significantly higher FSIQ total scores than those in the general environment group, with all differences being statistically significant (P ＜ 0.05), as shown in **Table 1**.

Table 1. Comparison of FSIQ scores between the two groups

Group	FSIQ Total Score
High-Quality Nurturing Environment Group (n=163)	108.65 ± 8.23
Average Environment Group (n=137)	95.32 ± 7.85
t	14.242
P	＜ 0.001

3.3. Comparison of behavioral development scores between the two groups of children

Children in the high-quality nurturing environment group scored higher than those in the general environment group in the externalizing behavior domain, internalizing behavior domain, and competence domain, while scoring lower in the dysregulation domain. All differences were statistically significant (all $P < 0.05$), as shown in **Table 2**.

Table 2. Comparison of behavioral development scores between groups

Group	Externalizing Behavior Domain	Internalizing Behavior Domain	Disorganized Domain	Competence Domain
High-Quality Nurturing Environment Group (n=163)	1.52 ± 0.35	1.48 ± 0.32	0.65 ± 0.28	1.62 ± 0.27
Average Environment Group (n=137)	1.25 ± 0.30	1.22 ± 0.28	0.98 ± 0.31	1.34 ± 0.29
t	7.099	7.418	9.682	8.649
P	< 0.001	< 0.001	< 0.001	< 0.001

4. Discussion

Early childhood (ages 3–6) represents a critical sensitive period for intellectual development and behavioral pattern formation. As the primary setting for child development, the quality of the home nurturing environment directly influences children's physical and mental developmental trajectories [4]. Regarding the influence mechanisms across core dimensions of the family nurturing environment, the interplay of key elements—emotional warmth, linguistic stimulation, cognitive support, and parenting styles—in early family settings plays an irreplaceable foundational role in enhancing children's cognitive abilities, fostering emotional regulation, and promoting social adaptability [5]. For instance, rich language interactions support the development of children's language centers, enhancing verbal comprehension and expression abilities; a warm and harmonious family atmosphere reduces children's stress levels, providing a stable physiological foundation for the development of higher cognitive functions [6]. Conversely, a poor nurturing environment characterized by high punishment and low support may increase the risk of emotional dysregulation and social difficulties in children.

This study systematically assessed the home nurturing environments and intellectual/behavioral development levels of 300 children aged 3–6 years. The results showed that children in high-quality home environments scored significantly higher than those in average environments on the FSIQ total score and all subscale scores, including verbal comprehension and visuospatial abilities. They also scored higher on externalizing behaviors, internalizing behaviors, and competence domains, while scoring lower on the dysregulation domain. All differences were statistically significant ($P < 0.05$). These findings align with numerous domestic and international studies, further confirming that early home nurturing environments are critical external factors influencing preschool children's intellectual and behavioral development. This provides important evidence-based support for early childhood health interventions. The underlying mechanism suggests that prolonged exposure to an emotionally nurturing environment—characterized by acceptance and

attentiveness—effectively activates healthy neurological development. This particularly facilitates maturation of the limbic system and prefrontal cortex, which are central to emotional regulation and higher cognitive function development [7]. Simultaneously, a warm and harmonious family atmosphere reduces children's stress response levels, minimizing excessive secretion of stress hormones like cortisol and providing a stable physiological foundation for intellectual development [8]. Moreover, early childhood represents a critical sensitive period for language acquisition and cognitive development. Rich linguistic interactions promote the development of the brain's language centers, enhancing verbal comprehension and expression. Diverse cognitive stimuli stimulate children's curiosity and mental agility, bolstering core intellectual dimensions such as visual-spatial abilities and working memory. When children gain access to richer language input, cognitive games, and exploration opportunities, their intellectual development levels will inevitably be further enhanced [9].

At the behavioral development level, the effectiveness of nurturing social adaptation/self-care skills is directly reflected in children's social adaptability and the formation of behavioral norms. When children are raised in high-quality family environments, systematic guidance from family members enables them to gradually master self-care skills through daily practice. Simultaneously, they learn to understand social rules and regulate their own behavior to adapt to external environments, thereby effectively enhancing their self-efficacy and social interaction abilities [10].

Given these findings, community health service institutions should proactively assume core responsibilities in family parenting guidance. Through initiatives such as parent education classes and parent-child interaction training, they can specifically enhance parents' emotional interaction abilities, language stimulation techniques, and scientific parenting approaches, thereby reducing instances of punishment and neglect. Concurrently, establishing a family-nurturing environment assessment mechanism allows for targeted interventions in families within the general environment group. Personalized guidance can optimize the nurturing environment, achieving early promotion of children's intellectual and behavioral development.

5. Conclusion

The family nurturing environment plays a crucial role in shaping children's early intellectual development and behavioral growth. To optimize these outcomes, it is recommended that parents actively enrich home-based learning stimuli, engage in positive and responsive parent-child interactions, and adopt warm, accepting parenting styles. Such approaches can effectively enhance children's cognitive abilities and foster positive behavioral development, providing a solid foundation for their long-term growth and well-being.

Disclosure statement

The authors declare no conflict of interest.

References

[1] Wang S, Qi TT, Lu S, et al., 2025, The Influence of Temperament and Family Nurturing Environment on Language Development Trajectories in Children Aged 5–11. Proceedings of the 26th National Psychology Conference (Volume 7). Chinese Psychological Society, Chinese Psychological Society, 2025: 2.

[2] Wei LL, 2025, Research on the Mechanism of Family Nurturing Environment's Influence on Children's Emotional

Development. Youth Development Forum, 35(4): 68–76.

[3] Li DB, Li FF, Chen M, et al., 2024, The Influence of Family Nurturing Environment on Early Development and Emotional-Social Development in Children. China Medical Guide, 22(34): 51–53.

[4] Xia X, 2024, Current Status of Family Nurturing Environments Among Newly Enrolled Preschool Children in Hainan and Their Impact on Early Childhood Development, thesis, Hainan Medical University.

[5] Wang YN, Xu YY, Zhang X, et al., 2023, Research Progress on the Impact of Family Nurturing Environment on Preschool Children with Attention Deficit Hyperactivity Disorder. Chinese Journal of Child Health Care, 31(8): 864–867 + 878.

[6] Feng L, 2022, Study on the Impact of Family Nurturing Environment on the Development of Psychological Resilience in Preschool Children. Journal of Tianjin Academy of Educational Sciences, 34(4): 88–96.

[7] Xi CY, 2022, Family Nurturing Environment of Rural Preschool Children Aged 3-6 and Its Impact on Child Development, thesis, Nanjing Normal University.

[8] Ye J, Sun JL, Zhang YN, et al., 2023, Analysis of Developmental Screening Results for Infants Aged 0–12 Months in Wenzhou City. Chinese Maternal and Child Health, 38(15): 2851–2854.

[9] Ma Y, Shen RY, Zhang YY, et al., 2022, Analysis of Factors Associated with Language Developmental Delay in Children Aged 1–6 Years. Beijing Medicine, 44(7): 613–619.

[10] Qiu YF, Li MS, Shi HF, et al., 2024, Impact of Family Nurturing Environment on Suspected Developmental Delay in Rural Left-Behind Children Aged 0–3 Years. Chinese Journal of Reproductive Health, 35(3): 201–206.