

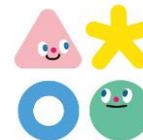
Early Developmental Assessment and Monitoring of Preterm Infants: Integrating Parental Perception in Korea

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Council on Early Intervention



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Development Center

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Study Background

- This study evaluated an early intervention program for preterm infants in Korea, launched in 2021.
- The premature infant monitoring program at the Seocho Child Development Center was designed to support infant development and assist families.
- We planned to know what parents participating the program think about it.

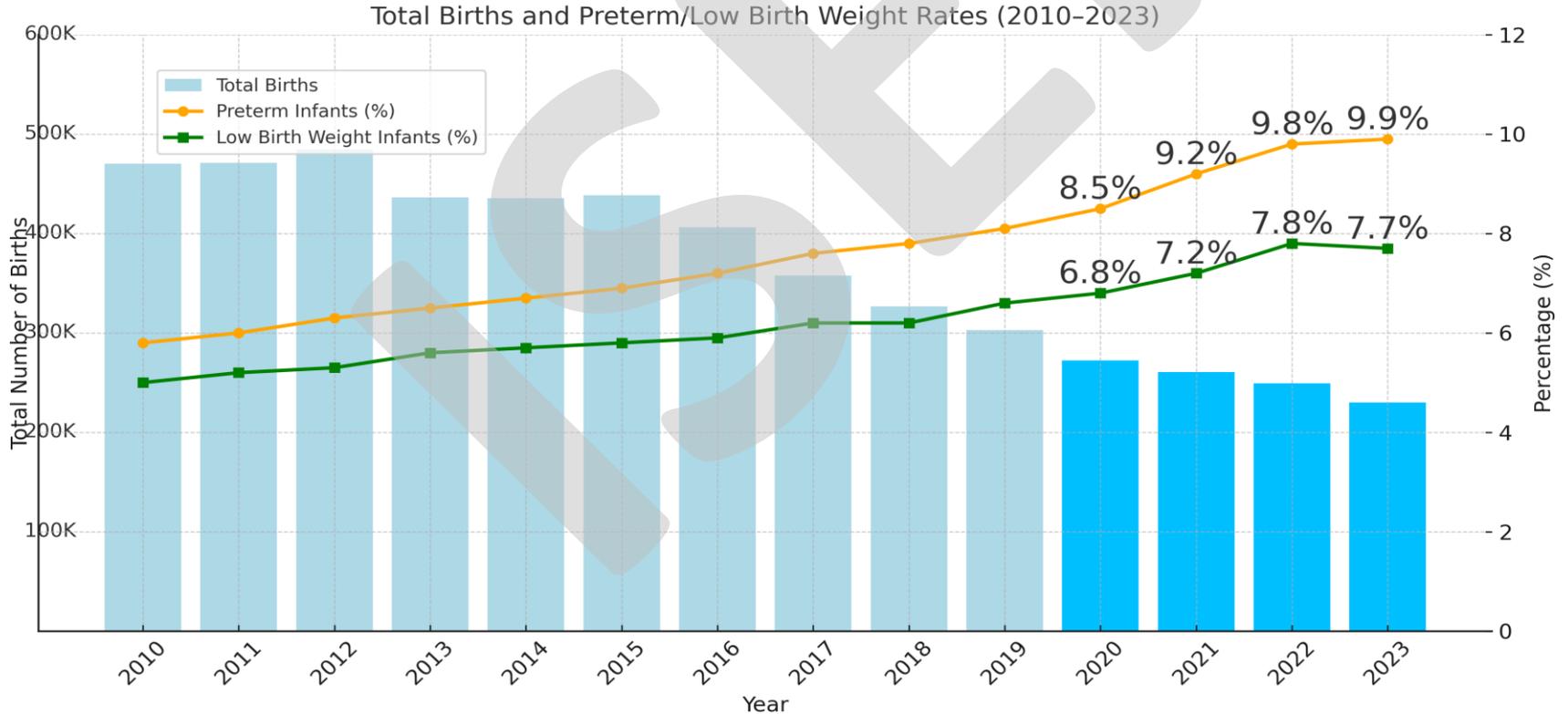
At-risk for developmental delays and disabilities

Research of premature infants' development

- Premature infants face **elevated and diverse developmental risks**, particularly in cognitive, motor, language, and behavioral domains.
- Early detection, consistent monitoring, and intervention -especially family-centered and multidisciplinary- are essential for improving long-term outcomes.

Rising Rates of Premature Births in Korea

Total Births and Preterm/Low Birth Weight Rates (2010–2023)



Korean Healthcare System for premature infants and young children

Korean Support System for premature infants

- **Medical Care System: National Infant & Child Health Check-ups** through the National Health Insurance include repeated developmental screening **from 14days after birth to 71months(age 6)**

(8 times : 14~35days, 4~6months, 9~12months, 18~24months, 30~36months, 42~48months, 54~60months, 66~71months)

- **Financial support: Government medical expense support for premature infants and those with rare disease**

The *Reduction of Outpatient Medical Expense Copayment Rate* for premature or low birth weight infants allows eligible children to pay only **5% of total outpatient medical costs, including pharmacy charges,** until age 5.

Therapy Access for Infants with Developmental Delays in Korea

- South Korea has seen **a significant rise in early diagnosis and therapeutic intervention** for infants and toddlers with developmental delays
- While parental awareness and service usage are high, the lack of a coordinated public system and overreliance on private providers reveal deep structural gaps.
- There is an urgent need for **policy reform that ensures equitable, integrated, and family-centered services** across the early developmental care continuum.

Seocho District Early Intervention Center, Seoul



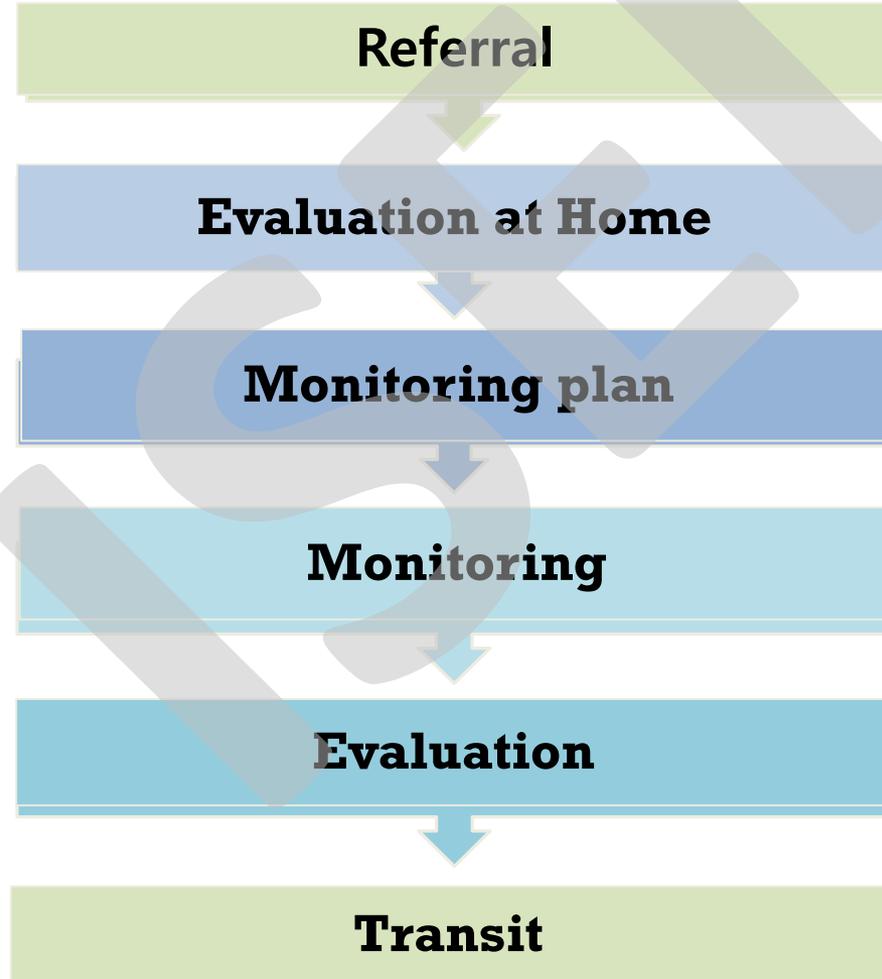
- A local government(Seocho-gu, Seoul) established the family-centered early intervention center in 2021. (First public center)
- A multidisciplinary team including special education teacher, physical therapist, occupational therapist, speech therapist, and service coordinator served infants, toddlers, and preschoolers with special needs or at-risk and their families

Seocho District Early Intervention Center, Seoul

Seocho Premature Infants/Toddlers program

- Family-centered program to support the development of preemies and strengthen family capacity
- Service provided at homes or daycare centers (natural development environment)
- Using daily routine to provide educational and therapeutic opportunities
(sleeping, feeding/eating, maintaining awakening, bathing, changing diapers, playing, going out, social-interacting, etc.)
- Facilitate infant and family interaction
- Emotional support for parents
- Team(Transdisciplinary) approach

Premature Infant Monitoring Program service procedure



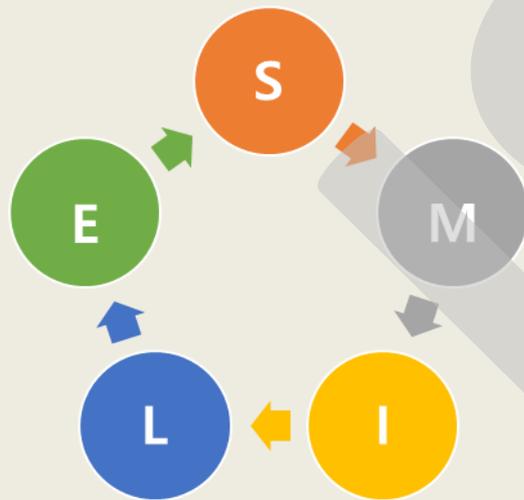
Seocho District Early Intervention Center, Seoul



SMILE Interaction Approach

Interaction approach

SMILE, a dynamic cycle of interaction between a parent and an infant to support parents to understand their child's signals and respond appropriately to her/him



S (Signal) Knowing a child's signals



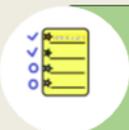
M (Mind) Responding to a child's mind



I (Intended activities) Providing an intended activity



L (Look) Check the child's response



E (Evaluation) Evaluate intended activity

A Case



A girl of fraternal twins. At 5 months (corrected age 4 months), interested in a certain color dolls (red, white, black), no eye contact, limited physical posture (lying on her stomach), limited babbling. Mother was concerned about autism.

Research Objectives

1. To identify the characteristics of premature infants in our program.
2. To examine parents' satisfaction and opinions regarding assessments, home visit monitoring, and phone monitoring.
3. To explore the relationship between children's characteristics (such as the severity of medical problems, degree of prematurity, and extent of low birth weight) and parental satisfaction.
4. To examine the relationship between service provision and parents' satisfaction and opinions.

Research Methods

1. Participant Selection

- a survey was distributed to parents who participated in our early intervention program for premature infants from 2021 to May 2025.
- Among the respondents, **60 parents** were selected for analysis. These participants were chosen based on the **accuracy and completeness of both the child's and parent's information** recorded in the survey.

Research Methods

2. Statistical Analysis

- Quantitative and qualitative data were analyzed using appropriate statistical methods.
- **Descriptive statistics** for demographic information
- **Correlation analysis** to examine relationships between variables
- **Chi-square tests** and **nonparametric methods** to identify differences between groups (e.g., based on service duration, developmental status, medical complexity, etc.)
- **Thematic analysis** for open-ended responses from parents

Results

characteristics of premature infants (Objective 1)

- **Single or Multiple births**

classification	# of person (%)
Singletons	42 (70%)
twins	17 (28%)
triplets	1 (2%)

- **At birth, Gestational age(weeks) & Birth weight**

	Average	SD	Range
Gestational age (weeks)	33.58 wks	2.81 wks	25~37 wks
Birth Weight (kg)	2.02kg	0.51	0.69~2.98

Results

Subjects (Child)

Gestational age (detail)

Classification	# of Response
extremely preterm(born before 28weeks)	4
very preterm(28weeks~31weeks)	5
moderate preterm(32~33weeks)	13
late preterm (34~36weeks)	33
No preterm (above 37weeks)	5

Birth Weight

Classification	# of Response
Extremely low birthweight (ELBW) < 1000 g	3
Very low birthweight (VLBW) 1000 to 1499g	6
Low birthweight (LBW) 1500 to 2500g	43
>2400g	8

Results

Subjects (Child)

At the first evaluation, corrected age(weeks) & Birth weight

	Average	SD	Range
corrected age (months)	2.1mos	1.39mos	0~5 mos
Chronological age (months)	3.35mos	1.45mos	1~7 mos

NICU Stay

# of responses	Average	SD	Range
44 persons (73%)	38.02 days	34.39 days	3~159days

Results

Subjects (Child)

Medical problems (severity)

Classification	# of responses
No problem	26
Some problems	26
Many problems	8

* **57% of infants had at least some health complications at birth.**

Results

Subjects (Child)

Medical problems (detail)

Classification	# of responses
Neurological Injuries	11
Respiratory and Cardiac problems	25
Gastrointestinal Disorders	6
Visual Impairments	2
Hearing Impairments	3
Chromosomal Abnormalities	3
Other Conditions	1
None Reported	26

*** A lot of infants had multiple medical issues.**

Interpretation (Child)

- These data confirm that the sample includes a wide range of premature infants, from moderately preterm to extremely preterm.
- The high rate of NICU use emphasizes the medical complexity of this population.
- Many had low birth weight and medical complications, highlighting the need for early intervention services.

Frist Developmental Assessment Results

- Use HELP(Hawaii Early Learning Profile), NBO(Newborn Behavior Observation), Parent Report, Observation, Clinical judgment. (not standardized assessment tool)
- Majority of infants showed typical development.
- Some infants demonstrated delays in cognitive, motor, or language domains.
- Developmental scores were strongly correlated with child's corrected age (Spearman rho > 0.84, p < 0.001).
- Too young to know their developmental issues yet.
(Average corrected age was 2.1 months)

Parental Satisfaction

Objective 2 (Parental satisfaction with assessment, home visits, and phone monitoring)?

1. Initial Developmental Assessment

2. Home Visit

3. Phone/Text Communication

Parental Satisfaction

Objective 2 (Parental satisfaction with assessment, home visits, and phone monitoring)?

Initial Developmental Assessment

- questions about understanding child development, practical support for child development , and emotional support for parents
 - Most parents rated average 4.72 out of 5 (Likert scale)
 - Helped parents understand child's development
 - Reduced parental anxiety
 - Sample comment: "I was glad to learn more about my child."

Parental Satisfaction (open questions)

Common Themes Identified:

- **Increased Understanding of the Child**
 - *"I got to know my child better."*
- **Emotional Reassurance**
 - *"I was very anxious at first, but felt reassured when the professionals visited in person."*
- **Professionalism and Warmth**
 - *"Three specialists came and gave warm and knowledgeable advice."*
- **Desire for Practical Resources**
 - *"It would be helpful to have a booklet with explanations and actions for each developmental stage."*
- **No Additional Feedback**

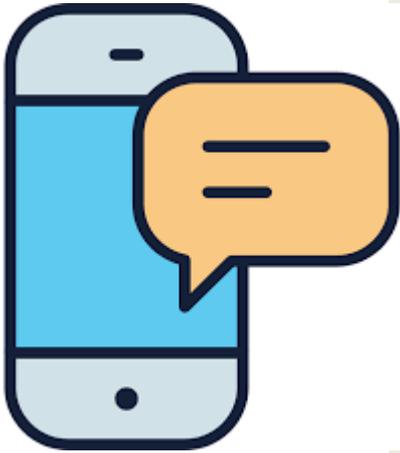
Parental Satisfaction

Home Visit

- Questions about understanding child development, practical support for child development, and emotional support for parents
 - Most parents rated average 4.89 out of 5 (Likert scale)
 - Parents overwhelmingly agreed that these visits helped them both **practically and emotionally**.
 - direct, in-person support is especially impactful.



Parental Satisfaction



Phone/Text

- questions about understanding child development, practical support for child development, and emotional support for parents
 - Most parents rated average 4.73 out of 5 (Likert scale)
 - Phone and text consultations were rated **very highly**, only slightly below home visits, suggesting that **remote support was still meaningful and effective** for most families.

Parental Feedback Summary

- **Positive Themes:**

- Better understanding of development
- Reduced anxiety, increased confidence
- Appreciation for home visits and professional support

- **Challenges:**

- Request for longer/more frequent services
- Information sometimes unclear or insufficient
- **Medically complex children had more varied satisfaction**

Monitoring Data

Objective 3: Relationship Between Child Characteristics and Satisfaction

	Monitoring Period (months)	Monitoring Visit Count
Mean	19.8 (mos)	19.2
SD	7 (mons)	25.18
Range	4~34 (mons)	1~115

- Most of families had 12~34 months of service
- There's a wide range in the number of home or phone visits, suggesting that services were **customized to each child's needs or family situation.**

Relationship between variables

Objective 3: Relationship Between Child Characteristics and Satisfaction (Pearson Correlation Coefficient)

Child Characteristics	Correlation with Monitoring Visits	Correlation with Monitoring Period
Gestational age	- 0.33	- 0.18
Birth Weight	- 0.47	- 0.21
Health Severity	+ 0.54	+ 0.30

- **Negative correlations** for gestational age and birth weight indicate that **more premature and smaller infants received more support.**
- **Positive correlation** for health severity shows that **children with more medical issues received longer and more frequent monitoring.**

Service and Satisfaction

Objective 4: Relationship between service provision and satisfaction?

- Chi-square test found significant difference in feedback between ongoing and ended service groups ($p = 0.0099$).
 - Parents with **ongoing services** may still be benefiting from regular communication and support, leading to **more positive feedback**.
 - Meanwhile, parents in the **ended group** may reflect differently, perhaps being a few critical or more grateful depending on their outcome.

Service and Satisfaction

Objective 4: Relationship between service provision and satisfaction?

- The **type of service transition**—like from a **Physical Therapist (PT)** to a **Speech Therapist (ST)** or **Special Education (SpEd)** teacher—was more important to parents than just **how often visits occurred**.
 - A parent who requested service changes reflecting child's development or received **clear explanations** from a team that transitioned from PT to ST might feel **more supported**, even if they only had a few visits.

Conclusion

- This study revealed that parents of premature infants reported **high satisfaction** with the program's services, particularly **home visits** and **personalized support**. The data also confirmed that the program is responsive—**children with greater medical needs received more frequent and longer-term support**.
- However, **statistical analysis showed no strong correlation between the number of visits and satisfaction scores**. In fact, families who received **more visits** often had infants with **more complex health conditions**, which may naturally reduce perceived satisfaction despite intensive support.

Conclusion

- This challenges a common perception in Korea that “**more services = better outcomes.**”
- Many Korean parents believe that providing as many services as possible is the best way to ensure developmental success.
- A more effective approach is to focus **on timely, appropriate, and well-communicated support** that matches the child’s actual needs. This helps parents feel **confident**, not overwhelmed, and allows professionals to provide **sustainable, high-quality care** for every child.

Previous Research on Premature Infants

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Research Article

Experiences of Mothers' Attachment in a Follow-Up Program Using Early Intervention for Low-Birth-Weight Infants



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SUMMARY

Purpose: Mothers who give birth prematurely experience parenting stress after their babies are discharged and find it difficult to emotionally bond with them. Forming an emotional bond with a baby promotes the baby's growth and development, helps the mother cope with parenting stress after discharge, and is important for maintaining family functioning. This study aimed to identify the attachment experiences of mothers with low-birth-weight infants (LBWIs) in a follow-up program using early intervention.

Methods: A phenomenological perspective was used for this qualitative research. Data were collected from in-depth interviews with twelve mothers who participated in a follow-up program using early intervention for mothers with LBWIs from September 2017 to December 2017. Colaizzi's method was used to analyze the data.

Results: The experience of mothers' attachment was investigated on the basis of three categories: 'beginning of changes in parenting methods,' 'forming an intimate mother-child bond,' and 'concerns and expectations about the child's development.'

Conclusion: The results indicate that the follow-up program using an early intervention designed to increase mothers' confidence in their parenting skills can promote mother attachment and the quality of life of families with LBWIs.

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Experiences of Mothers' Attachment in a Follow-Up Program Using Early Intervention for Low-Birth-Weight Infants

The purpose of this study

to identify the attachment experiences of mothers with low-birth-weight infants (LBWI) in a follow-up program using the early intervention.

Results

The results indicate that the follow-up program using an early intervention designed to increase mothers' confidence in their parenting skills can promote mothers' attachment and the quality of life of families with LBWI (Lee, Choi Kang, & Ji, 2019).

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Thanks for listening!



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