Early Childhood Development Index 2030 (ECDI2030): a Pilot study for the application of early childhood development assessment in our country.

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Abstract

Objective: This study aims to pre-evaluate the applicability and validity of the application of the ECDI2030 Index in our country.
Methodology: A cross-sectional pilot study was conducted with parents/guardians of children aged 24–59 months, using the standard questionnaire ECDI2030 with 20 questions (after double translation, discussion with the working group and adaptation in the Albanian context according to the relevant guidelines). The information was reviewed regarding the child's age and other demographic data related to the mother and child such as: gender, area (urban/rural), mother's education, time the child spends in front of the screen, presence of books in the house.
Results: The index was easy to administer, in total 85.4% of children were on the right developmental path. Insignificant differences related to gender were identified, while children in urban areas had a higher percentage of being on the right path of development. Also, those who had fewer books at home had a lower percentage of being on the right path of development
Conclusion: ECDI2030 is a suitable tool for use in our country and for integration into national early development monitoring systems. Interestingly, the children who stayed in front of the screen were 100% on the right path of development.

Keywords

ECDI2030; Early childhood; Preliminary study; SDG 4.2.1.

1. Introduction

Early child development is a key factor for health, education, and well-being throughout life. Neuroscientists as well as decades of scientific research have shown that the early childhood period is the most important and critical period for brain development and function.[1,2,3] A child's experiences in the early years are linked to educational achievement later in life, as well as the development of skills and productivity in adulthood. Children who have good health, proper nutrition, early stimulation, opportunities to learn, care and protection in the first years of life, are prone to better cognitive, linguistic and psychosocial development.[4.5] For this reason, it is included in the global Sustainable Development Goals (SDG 4.2), which aim for all children to have access to quality development and early education by 2030. To monitor this objective, ECDI2030, an international standard Index that measures children's development in three main areas: learning, psychosocial well-being and health was developed. [11,12,13]

2. Literature Review

Early childhood development (ECD) refers to the physical, cognitive, emotional, and social development of children from birth to early schooling years. It is widely recognized as a critical period that shapes long-term health, learning, and well-being outcomes. Research shows that investments in early childhood yield significant lifelong benefits, particularly in low- and middle-income countries (Black et al., 2017; Daelmans et al., 2015).

The Nurturing Care Framework emphasizes that optimal child development depends on health, nutrition, responsive caregiving, security, and early learning opportunities (Black & Trude, 2019). This holistic perspective has strengthened global efforts to improve child development outcomes.

International organizations such as UNICEF and the WHO have developed tools and guidelines to monitor and support early childhood development. For example, the Early Childhood Development Index 2030 (ECDI2030) provides standardized measures to assess developmental progress across countries (UNICEF, 2023). Similarly, global datasets highlight disparities in developmental outcomes and emphasize the need for targeted interventions (United Nations Children's Fund, 2023).

The World Health Organization (2019) also underscores the importance of physical activity, reduced sedentary behavior, and adequate sleep in promoting healthy development in young children.

Parental education plays a significant role in shaping child development outcomes. Studies show that both maternal and paternal education are strongly associated with children's cognitive and physical development across diverse contexts (Jeong et al., 2018). Higher maternal education is also linked to greater investments in children's health and well-being (Prickett & Augustine, 2016). Gender differences in early learning outcomes have also been observed. Experimental evidence suggests that targeted interventions in preschool settings can reduce gender gaps in learning and development (Fidjeland et al., 2023).

Modern environmental factors, particularly screen exposure, have raised concerns regarding their impact on child development. Excessive screen time has been associated with negative cognitive and psychological outcomes in children (Domingues-Montanari, 2017).

Conversely, structured early interventions and supportive caregiving environments have been shown to significantly improve developmental outcomes (Daelmans et al., 2015; Aboud & Yousafzai, 2016).

Recent advances focus on improving how child development is measured globally. New methodologies aim to establish standardized performance benchmarks and improve cross-country comparability (Petrowski et al., 2023; Halpin et al., 2024). Emerging research also

highlights key predictors of early childhood development, emphasizing the interaction between biological, social, and environmental factors (Abebe et al., 2025).

3. Methodology

This study employed a cross-sectional pilot design to assess early childhood development among children aged 24–59 months. The cross-sectional approach allowed for the collection of data at a single point in time, providing a snapshot of developmental outcomes and associated factors. As a pilot study, it also aimed to evaluate the feasibility and applicability of the research instruments and procedures.

Data were collected using the Early Childhood Development Index 2030 (ECDI2030) questionnaire developed by UNICEF, adapted in Albanian. The instrument consists of 20 closed-ended questions that assess key domains of child development, including cognitive, socio-emotional, literacy–numeracy, and physical development. Face-to-face interviews were conducted with mothers or primary caregivers by trained interviewers. Prior to data collection, interviewers received standardized training to ensure consistency in administration and minimize bias. The questionnaire was linguistically adapted to the local context to ensure clarity and cultural appropriateness while maintaining the integrity of the original instrument.

The study sample consisted of 62 mother–child (or primary caregiver–child) pairs, with children aged 24–59 months. Participants were selected using a convenience sampling approach. Mothers or primary caregivers were chosen as respondents due to their close involvement in the child's daily activities and development.

Data analysis was conducted using descriptive statistical methods. The primary outcome measure was the proportion of children classified as developmentally "on track" according to ECDI2030 criteria. Percentages were calculated for the overall sample and across key subgroups, including:

- Child's gender
- Area of residence (urban/rural)
- Maternal education level
- Screen time exposure
- Availability of books in the household

These analyses allowed for comparison of developmental outcomes across different socio-demographic and environmental factors.

Participation in the study was voluntary, and informed consent was obtained from all participants prior to data collection. Confidentiality and anonymity of respondents were ensured throughout the research process.

This research was conducted in accordance with institutional ethical standards.

4. Results

A total of 62 children aged 24–59 months were assessed for developmental status using the ECDI2030. Overall, 85.4% of children were classified as developmentally "on track" (see Table 1).

The proportion of children on track varied across age groups. The highest percentages were observed among children aged **30–35 months (100%)** and **36–41 months (100%)**, while lower proportions were found in the **24–29 months group (72.7%)** and **48–59 months group (70.5%)**. Children aged 42–47 months showed an intermediate level (80%).

Developmental outcomes were similar across genders. **85.7% of females** and **85.1% of males** were classified as on track, indicating no substantial gender differences in this sample.

Children living in **urban areas (90.6%)** had a higher proportion of being on track compared to those in **rural areas (78.9%)**, suggesting possible disparities related to living environment.

A positive trend was observed between maternal education level and child development outcomes. Children of mothers with **higher education (89.7%)** had the highest proportion of being on track, followed by those with **secondary education (80%)**, while the lowest proportion was found among children whose mothers had **primary education (75%)**.

The proportion of children on track varied by screen time exposure. Children with **more than 1 hour of screen time per day (100%)** showed the highest percentage, followed by those with **1 hour per day (81.5%)**, and those with **no screen time (77.7%)**.

The availability of books in the household was associated with developmental outcomes. Children living in homes with **3–9 books (88%)** or **more than 10 books (87.09%)** had higher proportions of being on track compared to those with **fewer than 3 books (66.6%)**.

Table 1: Results

Variables	Variables	% expected "on track"
Age groups	**24-29 months old**	72.7%
	30-35 months	100%
	36-41 months	100%
	42-47 months	80%
	48-59 months	70.5%
	Total	85.4%
Gender	**Female**	85.7%
	Male	85.1%
Zone	**Urban**	90.6%
	Rural	78.9%
Mother's Education:	**Higher education (university)**	89.7%
	Secondary Education	80%
	Primary education (≤9 years of schooling)	75%
Child's screen time: (WHO - guideline) (I-phone, tablet, television)	**Not at all**	77.7%
	1 hour/day	81.5%
	More than 1 hour/day	100%
Number of books in the house:	**More than 10 books**	87.09%
	3-9 pounds	88%
	Less than 3 books	66.6%

5. Discussion

In this pilot study, 85.4% % of children aged 24-59 months in our country were on the right developmental path, exceeding the global average of 75.3% observed in 85 countries between 2014 and 2022.[6] Many of these countries, being with low and middle incomes, generally reported lower rates of developing children. Girls were more likely to be on the developmental path than boys, a trend observed globally, perhaps due to early language development and social skills.[3] The boys often confronted each other with communication challenges, with gender differences in early childhood education affecting engagement - girls tended to interacted more with the teachers, while the boys showed more spontaneous behavior.[7] Similarly, higher maternal education was associated with better developmental outcomes, as educated mothers are more aware of early childhood development and provided enriched learning environments.[8,9] Having books at home is important for early childhood development, as it helped foster language skills, cognitive growth and stronger parent-child bonds.[9] Reading to children improves their vocabulary, critical thinking, and imagination, strengthening bonds emotional.[9] This study found that screen use was also positively correlated with development outcomes. Many studies, especially in high-income countries, suggested that screen use can be harmful [10], our findings suggest the need for research into further.

6. Conclusion

This pilot study demonstrates the applicability of the Early Childhood Development Index 2030 (ECDI2030) as a practical tool for assessing developmental outcomes among children aged 24–59 months. The findings suggest that the instrument is suitable for wider use, given its structured format and ease of administration in field settings.

Furthermore, the ECDI2030 proved to be feasible for integration into national survey systems, particularly due to its standardized design and alignment with global monitoring frameworks developed by UNICEF. The results obtained in this study highlight its potential value for informing early childhood development policies, especially in identifying disparities across socio-demographic groups.

Although based on a limited sample, the study provides preliminary evidence supporting the usefulness of ECDI2030 in generating relevant data for policy and program development. These findings reinforce the importance of adopting reliable and comparable tools to monitor child development at population level.

Limitations:

- Small sample size (pilot)
- Possibility of bias from parental reporting

Recommendations

Based on the findings of this pilot study, several recommendations can be made:

- **Expansion into larger, representative studies** to validate the findings and improve generalizability
- **Integration of ECDI2030 into national statistical systems** to support routine monitoring of early childhood development
- **Use of ECDI2030 data for evidence-based policy planning**, particularly in designing targeted interventions for vulnerable groups

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