



Assessment of early childhood development and school readiness in low-and middle-income countries: a documentary review on inclusion and disability

Evaluación del desarrollo infantil y preparación escolar en contextos de bajos y medianos ingresos: una revisión documental sobre inclusión y discapacidad

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ABSTRACT

Early childhood development is a key determinant of lifelong well-being, as it directly influences individuals' educational, social, emotional, and health trajectories. This study aimed to analyze the scientific literature on the assessment of child development, school readiness, and the inclusion of children with disabilities in low- and middle-income countries. A qualitative documentary review approach was employed, based on the collection and thematic analysis of academic studies, institutional reports, and child development assessment tools retrieved from specialized databases and international organizations. The findings show that a significant proportion of children in low- and middle-income contexts experience developmental delays, a situation that is further exacerbated among children with disabilities due to structural, social, and educational barriers that limit their access to adequate health and education services. Likewise, a wide range of instruments for measuring child development and school readiness was identified; however, many of them present limitations in terms of cultural adaptation and contextual relevance, which restrict their applicability across diverse settings. The review also highlights a shift toward more comprehensive and multidimensional approaches to school readiness, recognizing the interaction between the child, family, school, and community as interdependent components of the educational process. Finally, it underscores the growing influence of international organizations in the standardization of child development assessment, which has generated debates about the need to balance global measurement frameworks with more inclusive, flexible, and context-sensitive approaches that reflect local realities.

Keywords: Early childhood development, educational assessment, inclusive education, school readiness.

RESUMEN

El desarrollo infantil temprano es un elemento clave para el bienestar a lo largo de la vida, ya que influye directamente en las trayectorias educativas, sociales, emocionales y de salud de las personas. El presente estudio tuvo como objetivo analizar la literatura científica sobre la evaluación del desarrollo infantil, la preparación escolar y la inclusión de niños con discapacidad en países de ingresos bajos y medios. Se utilizó una revisión documental con enfoque cualitativo, basada en la recopilación y análisis temático de estudios académicos, informes institucionales e instrumentos de evaluación provenientes de bases de datos especializadas y organismos internacionales. Los hallazgos muestran que una proporción importante de niños en contextos de bajos y medianos ingresos presenta retrasos en su desarrollo, situación que se intensifica en el caso de niños con discapacidad debido a barreras estructurales, sociales y educativas que limitan su acceso a servicios adecuados de salud y educación. Asimismo, se identificó una amplia variedad de instrumentos para medir el desarrollo infantil y la preparación escolar, aunque muchos de ellos presentan limitaciones relacionadas con su adaptación cultural y pertinencia en distintos contextos, lo que reduce su aplicabilidad en escenarios diversos. La revisión también evidencia una evolución hacia enfoques más integrales y multidimensionales de la preparación escolar, reconociendo la interacción entre el niño, la familia, la escuela y la comunidad como factores interdependientes del proceso educativo. Finalmente, se destaca la influencia creciente de organismos internacionales en la estandarización de la evaluación del desarrollo infantil, lo que ha generado debates sobre la necesidad de equilibrar la medición global con enfoques más inclusivos, flexibles y contextualizados que respondan a las realidades locales.

Palabras clave: Desarrollo infantil temprano, evaluación educativa, inclusión educativa, preparación escolar.

INTRODUCTION

Early childhood development is a key phase that decisively influences the present and future well-being of individuals, as well as their learning processes and life trajectories. Various studies have shown that experiences during the first years have a profound impact on educational achievement, social and emotional development, and long-term health (Campbell et al., 2014; Black et al., 2017). Despite this, wide global gaps persist in this area, particularly in low- and middle-income countries, where a large number of children present developmental delays and are in a situation of greater vulnerability to educational exclusion.

It is estimated that more than 250 million children under five years of age living in low- and middle-income contexts face developmental difficulties, which negatively impacts their subsequent school performance and quality of life (Black et al., 2017). Similarly, around 53 million children worldwide present some type of developmental disorder, with the majority concentrated in countries with limited health and educational resources (Olusanya et al., 2018). These figures highlight the magnitude of the global challenge related to timely, equitable, and quality care during early childhood.

In parallel, advances in neonatal care and the decline in infant mortality have increased the survival of children with disabilities or at risk of developmental delays, especially in contexts such as Malawi, where it has been estimated that up to 40% of the child population could be at risk of developmental difficulties (Tataryn et al., 2017). This reality has reinforced the need to strengthen educational and social systems to respond inclusively to the diversity of children's needs.

At the international level, initiatives such as the 2030 Agenda for Sustainable Development have recognized early childhood development as a priority, establishing goals aimed at ensuring universal access to quality early childhood education (United Nations, 2014). Accordingly, organizations such as UNICEF and the World Health Organization have promoted the design of instruments for the assessment and monitoring of child development, in order to generate comparable data globally (UNICEF, 2019).

However, according to Dávila Cisneros, J. D., Puican Carreño, A., Avellaneda Callirgos, L., Manrique, A. M., & Rojas Torres, C. B. (2025) these initiatives have also generated debates regarding how to conceptualize child development and early childhood education, especially between approaches based on standardized performance indicators and more comprehensive perspectives focused on the child's well-being. These differences are also reflected in the concept of "school readiness", which has evolved toward a multidimensional vision that integrates the child, the family, and the school as interrelated elements of the educational process (Scott-Little et al., 2006; McDowall Clark, 2017). From this approach, readiness for schooling should not be understood solely as the development of individual skills, but as a dynamic process influenced by the family, community, and educational environment (Peña, 2025). Along these lines, UNICEF (2012) proposes an integrated model in which the interaction among these three components is fundamental to facilitate an effective transition to formal education, especially in contexts of vulnerability.

In this regard, this review aims to critically analyze the existing literature on child development assessment and school readiness in low- and middle-income countries, in order to identify relevant measurement tools to assess the educational development of children with disabilities. This work is part of a broader project aimed at strengthening educational inclusion in community-based child development centers located in rural areas of Malawi (McLinden et al., 2018; Soni et al., 2020).

METHODS

The present study was conducted through a literature review with a qualitative approach, focusing on the analysis of scientific literature on early childhood development assessment, school readiness, and the inclusion of children with disabilities in low- and middle-income countries. This approach facilitated the collection, systematization, and analysis of information from various academic and technical sources, allowing the identification of theoretical approaches, trends, and assessment tools used in this field.

The methodological procedure was organized into different stages. First, the objective of the review was defined, aimed at identifying child development assessment instruments applicable in contexts characterized by high vulnerability. Then, the search and selection criteria for information were defined, including scientific articles, research studies, technical reports, and reviews related to child development, early childhood education, and disability.

Data collection was carried out through academic databases and institutional repositories specialized in areas such as education, developmental psychology, and child health, as well as international organizations linked to early childhood development. Studies addressing developmental assessment, school readiness, and educational inclusion in low- and middle-income countries were selected, prioritizing recent publications directly related to the topic.

After collection, a screening process of the material was carried out, eliminating duplicates and documents that did not meet the established criteria. Subsequently, an exhaustive review of the selected texts was performed to extract relevant information on study objectives, methodological approaches, instruments used, and main results.

The data analysis was conducted through thematic categorization, grouping the studies according to their contributions to child development, the assessment of school readiness, and the inclusion of children with disabilities. This process allowed for the identification of consensus, conceptual divergences, and existing gaps in the reviewed literature.

Finally, the findings were critically interpreted with the purpose of constructing an integrated vision of the state of knowledge on child development assessment in contexts of vulnerability and its link to educational inclusion processes.

RESULTS

The analysis of the reviewed literature shows a general consensus in recognizing the relevance of early childhood development as an essential pillar for educational performance, social well-being, and health throughout the life cycle. In this regard, the consulted studies indicate that interventions carried out in the first years of life have a profound and sustained impact on developmental trajectories, especially in contexts characterized by high socioeconomic vulnerability.

One of the main findings shows that a significant proportion of children under five years of age in low- and middle-income countries present developmental delays. This issue is mainly related to structural factors such as poverty, limited access to health and education services, as well as the scarcity of adequate environments for early stimulation. Similarly, it is recognized that children with disabilities or at risk of presenting them constitute an especially vulnerable group, with higher probabilities of educational exclusion and limitations in access to adequate assessment and follow-up processes.

Regarding the instruments used to measure child development, the review shows the existence of a wide variety of tools at the international level, including developmental scales, school readiness tests, and early learning assessment systems. However, one of the main problems identified is the limited cultural and contextual adaptation of these instruments, especially in low-income countries, where tools designed for high-income contexts are frequently applied (Baca, E., Amaguaña, M., Lara, G., Chuquin, J., Flores, A., & Salinas, C., 2025). Another relevant aspect is the growing trend toward broader and multidimensional conceptions of school readiness. The literature highlights that readiness for schooling does not depend solely on the child's characteristics, but results from the interaction between the family, the community, and the educational system. This perspective allows for understanding this process as dynamic and conditioned by social, cultural, and educational factors.

Likewise, progress is observed in the development of more inclusive assessment instruments, aimed at considering the capacities and functioning of children with disabilities. However, their application still faces significant difficulties, especially regarding the training of educational staff, the availability of resources, and the adaptation of instruments to local contexts.

On the other hand, the reviewed studies reflect a growing participation of international organizations in the promotion of standardized systems for child development assessment. Although these initiatives have improved the availability of comparable information across countries, they have also generated discussions surrounding the tension between measurement standardization and more comprehensive approaches to child development.

In synthesis, the results highlight the need for child development assessment systems that are culturally relevant, inclusive, and adapted to the realities of low- and middle-income countries, paying special attention to children with disabilities.

Table 1. Synthesis of child development assessment instruments identified in the literature.

Instrument	Main purpose	Dimensions assessed	Context of use	Main limitations
Early Childhood Development Index (ECDI) (UNICEF)	Measuring development in children under 5 years of age.	Cognitive, socioemotional, language, and learning.	International comparisons.	Limited cultural adaptation in some countries.
IDELA	Assessing early learning.	Early mathematics and motor skills.	Low- and middle-income countries.	Requires technical training.
MDAT	Assessing child development.	Motor, language, and social.	Rural contexts in Africa.	Limited regional applicability.
WG-UNICEF Module	Identification of childhood disability.	General functioning.	Global population studies.	Does not directly measure learning.
School Readiness Tools	Assessment of school readiness.	Cognitive, social, and emotional domains.	Diverse, low-resource educational contexts.	Variable conceptualization across countries.

Source: Own elaboration.

DISCUSSION

The results of this review show that early childhood development continues to occupy a priority place on international education and health agendas, due to its decisive influence on people's life trajectories. The consulted evidence agrees that experiences in the first years of life are fundamental for academic performance, socio-emotional well-being, and economic outcomes in adulthood, underscoring the importance of implementing early, continuous, and sustained actions.

One of the most significant findings is the persistence of marked inequalities in child development, particularly in low- and middle-income countries. Although progress has been made in reducing child mortality and expanding health services, a considerable proportion of children still present developmental delays, increasing their vulnerability to educational exclusion. This situation is even more complex in the case of children with disabilities, who face greater obstacles in accessing assessment, early intervention, and inclusive education processes.

Similarly, the analysis highlights a tension between standardized assessment models and more comprehensive perspectives on child development. On the one hand, internationally promoted measurement systems have facilitated the collection of comparable data and the construction of global indicators. However, they have also been questioned for failing to adequately capture the complexity of child development in diverse contexts, especially in different sociocultural realities and with structural limitations.

Regarding school readiness, the results reflect an evolution toward broader, multidimensional approaches in which the child, family, and school are understood as interrelated elements. This shift in focus is significant because it transitions from a child-centered vision toward an ecological model where the environment plays a decisive role in the educational process. Despite this, its practical application remains limited in many contexts, primarily due to a lack of resources, insufficient teacher training, and the limited adaptation of assessment instruments.

Another relevant aspect relates to the use of child development assessment tools in low- and middle-income countries. Although a wide variety of internationally validated instruments exists, their implementation in local contexts faces challenges associated with cultural adaptation, the availability of trained staff, and educational infrastructure limitations. This highlights the need to design or adapt tools to be more contextually relevant, allowing for fairer and more precise assessments.

The growing involvement of international organizations in standardizing child development measurement has contributed to consolidating this issue as a global priority. However, it has also prompted debate on the importance of balancing uniform measurement with contextualized approaches that respond to the specific realities of each environment. In this regard, it is essential to transition toward more inclusive, adaptable, and culturally sensitive assessment systems that not only measure child development but also contribute to its enhancement.

CONCLUSIONS

This study provides an integrated analysis of the literature on early childhood development, school readiness, and assessment processes in low- and middle-income countries, demonstrating that the initial years of life represent a key stage for children's current and future well-being. The reviewed evidence reaffirms that inequalities in child development remain a global issue, with a more pronounced impact on vulnerable populations, particularly children with disabilities.

Similarly, despite progress in developing instruments and systems for child development assessment, significant limitations remain regarding their adaptation to different cultural contexts, applicability in diverse realities, and tendency toward highly standardized approaches. These weaknesses restrict the capacity of these systems to accurately represent the actual conditions of children in specific contexts, particularly in low- and middle-income countries.

The analysis revealed that school readiness must be conceived as a complex, multidimensional process influenced not only by the child's individual skills but also by factors within the family, community, and educational environment. This comprehensive vision is essential for advancing toward more equitable and inclusive education, although its implementation remains limited by a lack of resources, insufficient teacher training, and difficulties in adapting educational policies.

In this context, it is essential to strengthen the development and implementation of more inclusive, culturally relevant, and context-adjusted assessment instruments that do not merely measure child development but also actively contribute to its improvement. These instruments must recognize the diversity of environments in which children grow up and prioritize those at greater risk of exclusion.

There is a clear need to continue promoting research with interdisciplinary and inclusive approaches that contribute to strengthening public policies and educational practices aimed at early childhood. Ensuring equitable and high-quality child development requires a continuous, coordinated effort among governments, educational institutions, international organizations, and communities to guarantee that all children can reach their full potential.

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