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Early childhood development and its associated factors among children aged 36–59 months in Afghanistan: evidence from the national survey 2022–2023

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Abstract

Background Understanding the status of early childhood development (ECD) and its associated factors could serve as the basis for future policy efforts and interventions. Therefore, this study aimed to determine the status of ECD and its associated factors among children aged 36–59 months in Afghanistan.

Methods We used data from the Afghanistan Multiple Indicator Cluster Survey 2022–2023 (MICS) to assess ECD status. The outcome variable was a binary measure, indicating whether a child was developmentally on track or not. To explore the associations between ECD status and various explanatory variables, we applied binary logistic regression models, presenting both univariate and multivariate analyses.

Results Among the 13,866 children aged 36 to 59 months included in the analysis, 29.95% (95% CI: 29.19-30.72%) were found to be developmentally on track. The likelihood of being developmentally on track was higher in children whose mothers had secondary [adjusted odds ratio (AOR) 1.36 (95%CI 1.04–1.77)] and higher education [1.73 (1.08–2.76)], in children whose fathers had primary [1.32 (1.05–1.67)], secondary [1.40 (1.10–1.79) and higher education [1.60 (1.21–2.11)], and in children belonging to the higher household wealth status [1.46 (1.18–1.82)]. On the other hand, the likelihood of being developmentally on track was lower in children aged 48–59 months [0.35 (0.30–0.40)], in children living in rural areas [0.77 (0.62–0.96)], in children with stunting [0.77 (0.61–0.96)], and in underweight children [0.61 (0.52–0.72)].

Conclusion Our findings indicate that 29.95% of children aged 36–59 months in Afghanistan are developmentally on track. Positive associations were found between ECD and higher parental education and household wealth status. However, living in rural areas, underweight and stunted growth were negatively associated with ECD. To improve early childhood development programs in Afghanistan, targeted interventions are needed to address the factors identified in this study.

Keywords Afghanistan, Associated factors, Developmental delays, Early childhood development, MICS

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Introduction

Early Childhood Development (ECD) during the first five years is vital for physical, mental, emotional, and social growth [1, 2]. However, developmental delays and disorders remain significant public health concerns, particularly in low-and middle-income countries (LMICs). In 2017, developmental delays affected around 23% of children under five in LMICs [2–4]. This underscores the need for global efforts to improve early childhood care and education by 2030, a key goal in the Sustainable Development Goals (SDGs) [5].

Several factors, including nutritional intake, maternal health, household environment, and socioeconomic status, influence optimal growth and development in early childhood [6–9]. Without timely interventions, developmental delays can lead to long-term consequences, such as reduced cognitive development, lower adult income, and heightened health risks [6, 10, 11]. Multisectoral interventions in health, nutrition, education, and social protection are vital for helping children reach their full developmental potential [12–14]. Evidence suggests that early interventions, particularly those that span multiple sectors, significantly improve ECD outcomes [12, 15, 16].

Regions facing economic hardship have higher rates of developmental delays and socioeconomic inequalities that worsen these issues, emphasizing the need for targeted interventions in vulnerable communities [10, 17, 18]. Afghanistan, in particular, faces numerous challenges in the ECD landscape, driven by decades of conflict and socio-economic instability [2, 10]. The under-five mortality rate stands at 56 per 1,000 live births, with 44% of children stunted, and 45% at risk of poor development [19–21]. Early childhood education is extremely low at just 1% [19], while the exclusive breastfeeding rate is 58%, and care-seeking for pneumonia, a major cause of child mortality, is 68% [19, 20]. Given these challenges, children in Afghanistan are at a higher risk of experiencing trauma, malnutrition, and limited access to education and healthcare [22]. Such adversities can have profound and long-lasting effects on their development, further emphasizing the critical need for targeted ECD interventions. Ongoing sociopolitical instability, coupled with funding restrictions, has significantly strained health service delivery, family socioeconomic status, and the educational system [23–25]. While global efforts towards improving ECD have seen progress, as evidenced by the SDGs, Afghanistan presents a stark contrast in achieving these goals.

This study aims to assess the status of ECD and its associated factors among children aged 36–59 months in Afghanistan, using data from the 2022-23 Afghanistan Multiple Indicator Cluster Survey (MICS). By identifying the key factors influencing ECD in this unique and challenging context, the study offers insights for policymakers, practitioners, and researchers. The findings will contribute to the global effort to enhance ECD, particularly in conflict-affected and resource-constrained settings similar to Afghanistan, where children face multiple adversities from an early age.

Methods

Data and sample

This study used the data from the Afghanistan MICS 2022-23 conducted by UNICEF in collaboration with the National Statistics and Information Authority (NISA) of Afghanistan. The survey covers a wide range of indicators related to the situation of children and women, including child mortality, maternal and newborn health, education, water and sanitation, gender equality, and more. The survey was designed to provide estimates on a large number of indicators of the situation of children and women at the national and provincial levels. Details on survey sampling and participants are described elsewhere [26].

Survey setting, sampling, and participants

The MICS Afghanistan 2022-23 sample was designed to estimate various indicators regarding the situation of children and women at the national level, including urban and rural areas across 34 provinces. The primary sampling units (PSUs) were the enumeration areas (EAs) established for the national census. Each province was divided into urban and rural strata, from which a specified number of EAs were systematically selected based on probability proportional to size. Following a household listing within these selected EAs, a systematic sample of 24 households was drawn from each area, resulting in a total sample size of 23,568 households across 982 enumeration areas. Only 10 EAs were inaccessible due to security issues during fieldwork. A more detailed description of the sample design is available in the survey's final report [26]. All children under 5 years of age in the selected household were included and questionnaires were completed for 32,989 children aged under 5, which corresponds to a response rate of 98.8% within interviewed households. For this study, the sample was confined to children aged 36–59 months as the questions related to early child development were related to this age group.

Dependent variable

Early child development was defined as the percentage of children aged 36–59 months who are developmentally on track in at least three of the following four domains: literacy-numeracy (The child can do at least two of the following: identify/name at least 10 letters of the alphabet; read at least 4 simple, popular words; and/or know the name and recognize the symbols of all numbers from 1 to 10), physical (the child can pick up a small object with

two fingers, such as a stick or rock from the ground, and/or the mother/primary caregiver does not indicate that the child is sometimes too sick to play), social-emotional (the child demonstrates at least two of the following: gets along well with other children; does not kick, bite or hit other children; does not get distracted easily), and learning (the child follows simple directions on how to do something correctly and/or when given something to do can do it independently). It was measured by calculating the Early Childhood Development Index 2030 (ECDI-2030) following the relevant guideline which is described elsewhere [27].

Independent variables

Through a comprehensive literature review, we extracted all the relevant and available variables for early child development from MICS 2022-23. These include the following variables:

Child's factors

Age in months (36–47, 48–59); sex (male, female); area of living (urban, rural), and nutritional status including stunted children (height-for-age below minus two standard deviations of the median height-for-age of the WHO standards); wasted children (weight-for-height more than two standard deviations below the median of the WHO standards); underweight (weight-for-age more than two standard deviations below the median of the WHO standards); overweight children (weight-for-height more than two standard deviations above the median WHO standards).

Parental factors

Mother's age at the time of survey, mother's age at birth; parental education level; child discipline during the last month including psychological aggression (includes either one of the acts of (i) shouting, yelling or screaming at a child; or (ii) calling a child offensive names, such as 'dumb' or 'lazy') and physical punishment (includes either one of the acts of (i) shaking the child; (ii) hitting or slapping him/her on the face, head or ears; (iii) hitting or slapping him/her on the hand/arm/leg; (iv) hitting him/her on the bottom or elsewhere on the body with a hard object; (v) spanking or hitting him/her on the bottom with a bare hand; or (vi) beating him/her over and over as hard as possible), and positive attitude toward physical punishment.

Household factors

Number of children under 5, number of household members, wealth index as described elsewhere [28], sanitation facility which was considered as improved if they were designed to hygienically separate excreta from human contact, and include: flush/pour flush to piped sewer system, septic tanks, or pit latrines; ventilated improved pit latrines, composting toilets or pit latrines with slabs and considered unimproved if they flush to an open drain, pit latrines without a slab, hanging latrines and bucket latrines. Drinking water was considered as improved water if collection time was not more than 30 min for a roundtrip including queuing. In addition, improved drinking water sources are those that have the potential to deliver safe water by nature of their design and construction, and include piped water, boreholes or tube wells, protected dug wells, protected springs, rainwater, and packaged or delivered water. Unimproved drinking water sources include unprotected dug wells and unprotected springs.

Statistical analysis

Descriptive statistics were employed to describe the distribution of independent variables and the prevalence of developmentally being on track among children aged 36–59 months in Afghanistan. Logistic regression analysis was used to examine the likelihood of being developmentally on track across the independent variables, accounting for age and sex, and the results were reported as adjusted odds ratios (AOR) with 95% confidence intervals (95%CI). Previous studies suggested this approach allowing for the estimation of the effects of independent variables on the dependent variable, therefore providing valuable insights and allowing for targeted community interventions and preventive strategies [29, 30]. In addition, we developed separate and combined multivariable models to adjust for child, parental, and household factors, aiming to identify their associations with early child development. This step helps control for potential confounding effects and ensures a more robust analysis. To address potential multicollinearity between these factors, we examined the variance inflation factors (VIF) and applied appropriate adjustments where necessary. Sampling design and weights were applied by defining the survey strata, primary sampling unit, and weight using STATA 17. The statistical significance level was set at $p<0.05$.

Results

Early child development and associated child's factors

Among 13,866 children aged 36–59 months, 29.95% were on track, while 70.05% were not on track for early child development. As illustrated in Table 1, nearly 60% of the children did not meet developmental milestones, with the proportion rising to 79% among those aged 48–59 months ($p<0.001$). In the final adjusted model (Table 4), children aged 48 to 59 months were 65% less likely to be on track compared to their younger counterparts (36 to 47 months). About 71% and 68% of respectively males and females were not developmentally on track, with the

Table 1 Early child development and associated child's factors among children aged 36–59 months in Afghanistan

		Early child development			
	N **(%)**	**Not on track (%)**	**On track (%)**	***p*-value**	**OR (95%CI)**
Total sample	13,866 (100)	70.05	29.95		
Age (months)					
36–47	6826 (48.58)	60.09	39.91		Reference
48–59	7040 (51.42)	79.45	20.55	< 0.001	0.39 (0.35–0.42)
Sex					
Male	7091 (51.51)	71.46	28.54		Reference
Female	6775 (48.49)	68.54	31.46	0.013	1.15 (1.03–1.28)
Area of living					
Urban	2045 (22.21)	58.97	41.03		Reference
Rural	11,821 (85.25)	73.21	26.79	< 0.001	0.52 (0.45-60) [a]
Birth weight					
≥ 2500 g	1145 (78.76)	58.46	41.54		Reference
< 2500 g	241 (21.24)	66.98	33.02	0.086	0.70 (0.45–1.07) [a]
Nutritional status					
Stunted	7102 (50.87)	75.12	24.88	< 0.001	0.54 (0.48–0.61) [a, b]
Wasted	288 (2.06)	77.99	22.01	0.030	0.66 (0.43–1.02) [a, b]
Underweight	2741 (19.60)	79.43	20.57	< 0.001	0.52 (0.45–0.60) [a, b]
Overweight	464 (3.22)	73.01	26.99	0.258	0.78 (0.59–1.03) [a, b]

[a] Except age and sex variables, odds ratios were adjusted for the child's age and sex. [b] Yes versus no (reference group)

difference being statistically significant ($p=0.013$). The OR for females was 1.15 (95% CI: 1.03–1.29) and significant in the model including only child factors; however, it became insignificant after including the parental and household factors in the final model, potentially indicating a slightly higher likelihood of being on track among females. Urban children were more likely to be on track (41.03%) compared to rural children (85.25%), who had 73.21% not being on track ($p<0.001$). The odds of being on track were 23% lower among rural compared to urban children in the final adjusted model (Table 4). Children with a birth weight of ≥2500 g were more likely to be on track compared to those with <2500 g, though the difference was not statistically significant ($p=0.086$). Nutritional status significantly affected development, with stunted, wasted, and underweight children having higher rates and odds of not being on track compared to their counterparts in both bivariate and multivariable analysis (Tables 1 and 4). Overweight children did not show a significant difference in development status ($p=0.258$).

Early child development and associated parental factors

As Table 2 presents, approximately 70% of children in the youngest maternal age group (15–24 years) were not developmentally on track, comparable to older age groups; however, it was not statistically significant in the final adjusted model. The odds of being developmentally on track increased with the mother's education level, with mothers having higher education showing the most significant impact (OR=1.73, 95% CI: 1.08–2.76 in the final adjusted model). Similar trends were observed with fathers' education, where children with fathers having higher education had better developmental outcomes (OR=1.60, 95% CI: 1.21–2.11 in the final adjusted model). Regarding child discipline, psychological aggression by the mother or caretaker was associated with lower odds of children being on track in both bivariate and multivariable, including the other parental factors, but no in the final adjusted models (Table 4). However, physical punishment and a positive attitude toward physical punishment did not show a significant impact on developmental status.

Early child development and associated household factors

As Table 3 indicates, 65.37% of households that the sample belongs to had more than one child under five. These households were more likely to have children not on track developmentally (70.77%) compared to those with no children under five (64.96%). This pattern was observed in both bivariate and multivariable analysis, however, but not in the final adjusted model, (Table 4). In addition, larger households with more than seven members showed a higher proportion of children not on track (72.46%) compared to smaller households (67.33%), with this difference being statistically significant in bivariate analysis but not in the final multivariable analysis including other factors. The wealth tercile of the household also played a significant role. Children from low-wealth households had the highest proportion not on track (77.10%), while those from high-wealth households were more likely to be on track (38.48%), (OR=1.46, 95% CI: 1.18–1.82 in the final adjusted model). Access

Table 2 Early child development and associated parental factors among children aged 36–59 months in Afghanistan

		Early child development			
	N **(%)**	**Not on track (%)**	**On track (%)**	***p*-value**	**OR (95%CI)** [a]
Mother's age (year)					
15–24	2144 (16.45)	69.71	30.29		Reference
25–34	72.08 (53.76)	70.41	29.59		1.05 (0.90–1.22)
35–49	4153 (29.79)	69.33	30.67	0.698	1.15 (0.96–1.36)
Mother's age at birth					
≤ 18	801 (6.30)	73.07	26.93		Reference
19–29	7931 (59.11)	70.10	29.90		1.16 (0.92–1.44)
30–39	3895 (29.06)	68.83	31.17		1.25 (0.97–1.61)
40–49	878 (5.53)	71.19	28.81	0.338	1.12 (0.84–1.51)
Mother's education					
None	11,784 (84.98)	72.09	27.91		Reference
Primary school	932 (6.72)	65.97	34.03		1.31 (1.08–1.60)
Secondary school	882 (6.36)	60.01	39.99		1.70 (1.38–2.08)
Higher	268 (1.93)	47.29	52.71	< 0.001	2.77 (2.00-3.84)
Father's education					
None	7806 (58.22)	74.93	25.07		Reference
Primary school	1450 (13.66)	66.29	33.71		1.57 (1.33–1.85)
Secondary school	2336 (19.26)	64.18	35.82		1.67 (1.42–1.96)
Higher	1146 (8.86)	57.28	42.72	< 0.001	2.24 (1.84–2.73)
Child discipline during the last month					
Psychological aggression	6665 (47.01)	72.06	27.94	0.001	0.88 (0.79–0.98) [c]
Physical punishment	2066 (14.70)	70.74	29.26	0.612	1.02 (0.87–1.19) [c]
Positive attitude toward physical punishment [b]	1044 (27.27)	70.98	29.02	0.440	1.10 (0.86–1.41) [c]

[a] Odds ratios were adjusted for the child's age and sex. [b] By mother/caretaker. [c] Yes versus no (reference group)

to improved sanitation facilities and drinking water was associated with better developmental outcomes (32.50% and 32.54% on track respectively), both showing significantly higher odds of developmentally being on track (OR = 1.27 and 1.41 respectively) compared to households without these facilities in bivariate analysis, but not in multivariable analyses (Table 4).

Discussion

Our study aimed to determine the prevalence of ECD and its associated factors among children aged 36–59 months, using a nationally representative sample from Afghanistan. We found that only one-third of children aged 36–59 months are developmentally on track in Afghanistan, with substantial disparities influenced by child, parental, and household factors. Specifically, 70% of children were found to be developmentally not on track, a proportion notably higher than reported in many studies from LMICs [2, 8, 10, 31]. A multinational study from 63 LMICs reported that approximately 23% of the children aged 36–59 months were developmentally not on track, with rates ranging from 3 to 67% [2]. The high proportion of developmental challenges in Afghanistan is likely due to persistent sociopolitical instability, poverty, extreme food insecurity, and insufficient policy frameworks that hinder children's well-being [22, 32]. The economic collapse and political upheaval in Afghanistan since August 2021 have heightened vulnerabilities, undermining livelihoods, and intensifying a humanitarian crisis with dire consequences for the early childhood development of children, particularly among displaced and returning populations. Such findings underscore the importance of urgent interventions and policies, especially in health, nutrition, and education, enabling young children to achieve their full developmental potential.

Compelling evidence from previous studies demonstrates that children's sociodemographic characteristics are associated with their ECD status, but the results varied across studies [8, 31]. In this study, children aged 48–59 months were less likely to be developmentally on track than those aged 36–47 months, contradicting much of the previous literature that often reports higher developmental delays among younger children [2, 8, 33]. This inconsistency may stem from the absence of data on children under 36 months, which is a crucial period for identifying developmental delays. The UNICEF emphasize early screening for developmental milestones, particularly in the first three years, a period that plays a pivotal role in determining long-term outcomes [27]. Future studies should prioritize data collection in this younger cohort to capture a more comprehensive understanding of ECD trajectories.

Our findings also indicate significant rural-urban disparities in ECD status, with children from rural areas

Table 3 Early child development and associated household factors among children aged 36–59 months in Afghanistan

		Early child development			
	N **(%)**	**Not on track (%)**	**On track (%)**	***p*-value**	**AOR (95%CI)** [a]
Number of children < 5					
0	2870 (34.63)	64.96	35.04		Reference
≥ 1	5618 (65.37)	70.77	29.23	< 0.001	0.81 (0.69–0.94)
Number of household members					
1–4	4437 (34.48)	67.33	32.67		Reference
5–7	5524 (38.99)	70.79	29.21		0.88 (0.77–0.99)
> 7	39.05 (26.63)	72.46	27.54	0.002	0.78 (0.67–0.91)
Wealth tercile					
Low	5156 (33.92)	77.10	22.90		Reference
Middle	4567 (29.55)	72.49	27.51		1.29 (1.14–1.46)
High	4143 (36.53)	61.52	38.48	< 0.001	2.16 (1.89–2.47)
Improved sanitation facility	6649 (46.43)	67.50	32.50	< 0.001	1.27 (1.13–1.42) [b]
Improved drinking water	7903 (62.56)	67.46	32.54	< 0.001	1.41 (1.26–1.58) [b]

[a] Odds ratios were adjusted for the child's age and sex. [b] Improved versus unimproved (reference group)

faring worse than their urban counterparts. This urban advantage is consistent with previous studies showing that rural children are more prone to developmental delays due to limited access to healthcare, including immunization and maternal health services [34–37]. The stark levels of poverty prevalent in rural Afghan communities further exacerbate these disparities, as poverty is known to negatively impact early development [35, 38]. From the policy perspective, targeted interventions to improve ECD, particularly in rural settings, are essential to closing this gap.

The role of malnutrition in shaping ECD outcomes is well-documented, and our findings reinforce this relationship [2, 31, 33]. We found that malnourished children, particularly those who are underweight or stunted, are at heightened risk of developmental delays. A recent study reported that 44% of children under five are stunted in Afghanistan [21], a figure that signals a broader nutrition crisis. Other studies point to the significant developmental risks posed by other forms of malnutrition, further stressing the urgency of addressing nutritional deficits [39, 40]. Addressing child malnutrition should thus be a top priority for policymakers, as improving nutritional status could substantially enhance ECD outcomes across the country.

Our results also highlight the significant influence of parental education on ECD, particularly maternal education, which aligns with findings from other LMIC contexts [31, 41, 42]. Higher parental education, especially maternal education, is consistently associated with better developmental outcomes for children, as educated parents are often better equipped to provide nurturing environments conducive to development [31, 42, 43]. However, in Afghanistan, sociocultural barriers, low maternal education levels, and restricted access to resources further impede mothers' ability to support their children's development [44, 45]. The recent restrictions on women's education have further constrained access to essential services and opportunities, impacting the overall well-being and development of children [46]. This underscores the necessity of addressing gender disparities and investing in maternal education as part of a holistic approach to improving ECD outcomes.

Consistent with global and regional evidence, our study also found that children from wealthier households were more likely to be developmentally on track than those from poorer households [3, 31, 43, 47]. Family wealth can influence the degree to which a child's essential necessities, such as housing, nutritious meals, and healthcare, are met [43, 47]. A correlation further emphasized by the Afghanistan 2015 Demographic and Health Survey (ADHS) which highlights the under-five mortality gap between the richest (40 deaths per 1000 live births) and poorest (81 deaths per 1000 live births) quintiles—a gap that parallels the disparities in ECD outcomes [20]. These disparities are mirrored in ECD outcomes, suggesting that policies aimed at reducing poverty and improving household wealth are vital for improving childhood development in Afghanistan.

Study limitations

There are some limitations to this study. First, the cross-sectional data did not allow us to establish a temporal relationship between ECD and the factors identified in the study. However, the factors identified by the study align with previous studies conducted in LMICs [8, 31, 43]. Second, the data in MICS restricted our evaluation of different factors for ECD. Therefore, we urge future studies to consider other factors, such as immunization coverage, nutrition-related factors, infectious diseases in early life, prematurity, birthweight, genetic inheritance, caregivers' mental health, child support systems in the

Table 4 Adjusted logistic regression models for child, parental, and household factors, and their combined association with early child development among children aged 36–59 months in Afghanistan

	Early child development OR (95%CI)			
	Model 1	**Model 2**	**Model 3**	**Adjusted model**
Age (months)				
36–47	Reference			Reference
48–59	0.36 (0.33–0.40)*			0.35 (0.30-0.40)*
Sex				
Male	Reference			Reference
Female	1.15 (1.03–1.29)*			1.11 (0.94-1.30)
Area of living				
Urban	Reference			Reference
Rural	0.54 (0.47-63)*			0.77 (0.62-0.96)*
Nutritional status				
Stunted	0.70 (0.59–0.82)[a]*			0.77 (0.61-0.96)*
Underweight	0.64 (0.57–0.73)[a]*			0.61 (0.52-0.72)*
Mother's age (year)				
15–24		Reference		Reference
25–34		1.03 (0.88–1.20)		0.98 (0.78-1.22)
35–49		1.21 (1.01–1.46)*		1.18 (0.93-1.51)
Mother's education				
None		Reference		Reference
Primary school		1.19 (0.96–1.47)*		1.01 (0.77-1.33)
Secondary school		1.45 (1.17–1.79)*		1.36 (1.04-1.77)*
Higher		2.19 (1.52–3.16)*		1.73 (1.08-2.76)*
Father's education				
None		Reference		Reference
Primary school		1.47 (1.25–1.73)*		1.32 (1.05-1.67)*
Secondary school		1.56 (1.34–1.80)*		1.40 (1.10-1.79)*
Higher		1.86 (1.52–2.29)*		1.60 (1.21-2.11)*
Child discipline during the last month				
Psychological aggression		0.90 (0.81-1.00)[a]*		0.93 (0.80-1.07)
Number of children < 5				
0			Reference	Reference
≥ 1			0.80 (0.68–0.93)*	0.86 (0.73-1.03)
Wealth tercile				
Low			Reference	Reference
Middle			1.20 (1.03–1.40)*	1.13 (0.94-1.35)
High			2.17 (1.83–2.57)*	1.46 (1.18-1.82)*
Improved sanitation facility			1.07 (0.93–1.23)[b]	-
Improved drinking water			1.06 (0.92–1.23)[b]	-

Model 1: child factors; Model 2: Parental factors; Model 3; Household factors. [a] Yes versus no (reference group). [b] Improved versus unimproved (reference group). * p-value < 0.05

community, household food security level, and the quality of child care in their analyses [1, 8, 31, 42, 43]. Third, our analysis does not provide information on ECD status in children younger than 36 months, which could lead to underestimated ECD status. Fourth, the scales to measure early childhood development status differ across studies, and, therefore, the comparison of ECD rates and its associated factors in the context of various scales sounds formidable. Finally, recall and information biases come into play, provided the study relies solely on self-reports to assess four domains related to early childhood development.

Despite the above limitations, the identification of factors associated with ECD in Afghanistan, for the first time to our knowledge, may aid in future policy efforts and interventions to address poor early childhood development in Afghanistan and similar settings.

Conclusion

We found that only one-third of children aged 36–59 months are developmentally on track in Afghanistan. The likelihood of ECD was higher in children whose mothers are educated, whose fathers are educated, and in children living in households with higher wealth status. On the other hand, the odds of ECD were lower in children living in rural areas, and in children who are malnourished such as those underweight or those with stunted growth. Considering the unstable sociopolitical context and increasing humanitarian crises in the country, the UN agencies and international and local health organizations need to continue working with local communities, local authorities, and the Afghan government, including the Ministry of Health, to design and implement targeted health interventions in light of our findings, and address the factors identified in our study. Our findings highlight the urgent need for comprehensive interventions tailored to the unique challenges faced by children in this context, particularly those from impoverished and rural areas, and underscore the importance of a multi-sectoral approach encompassing health, nutrition, and education to improve the developmental trajectories of Afghan children.

Abbreviations

ADHS	Afghanistan Demographic Health Survey
AOR	Adjusted odds ratio
CI	Confidence interval
EAs	Enumeration areas
ECD	Early childhood development
ECDI	Early childhood development index
LMICs	Low and middle-income countries
MICS	Multiple Indicator Cluster Survey
NISA	National Statistics and Information Authority
PSUs	Primary sampling units
SDGs	Sustainable developmental goals
UN	United Nations
VIF	Variance inflation factors
WHO	World Health Organization

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Author contributions

Conceptualization and design: OD and MHS. Analysis: OD and MHS. Writing-original draft: OD, MHS, and MJ. Writing- review & editing: ET and OD. All authors have read and approved the final manuscript.

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Data availability

The MICS 2022-23 dataset is publicly available on UNICEF's official website through the following link: https://mics.unicef.org/surveys.

Declarations

Ethics approval and consent to participate

The study was reviewed by the Research and Ethics Committee, Faculty of Medicine, University of Kandahar, Afghanistan. The committee waived the ethical application because secondary data from the Multiple Indicator Cluster Survey (MICS) 2022–2023 were used and analyzed in this study. For the MICS 2022–2023, consent to proceed with the interviews was obtained from all participants. For children, informed consent was obtained from their parents or other caretakers.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

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