

# Early Child Development and Parental Interaction with Young Children in Thailand: an Analysis of the 2019 Multiple Indicator Cluster Survey

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## Abstract

The early years of a child's life lay the foundations for their future development. Parents and caregivers can help children reach their full potential by involving them in a variety of activities, including interactions through play. There is limited evidence of a relationship between adult interactions with young children by diverse family members and appropriate early child development outcomes. This study aimed to identify the prevalence of and relationship between father, mother, and other family members in interactions and the appropriate early child development among Thai children aged 3 to 4 years. A cross-sectional study of the 6<sup>th</sup> Multiple Indicator Cluster Survey (MICS) data in 2019 was employed. Face-to-face interviews with mothers and/or legal guardians were conducted. A total of 5,787 children aged 3 to 4 were enrolled in this study. The proportion of children who interacted with fathers for at least 4 activities was the lowest (31%), followed by other family members (53%) and mothers (58%). Children who interacted with fathers for at least 4 activities tended to achieve the highest appropriate early child development in univariate logistic regression analysis (crude odds ratio = 1.50, 95% confidence interval 1.19-1.87,  $p < 0.001$ ). While children who interacted with other family members for at least 4 activities had the greatest chance to achieve the appropriate early child development by multivariate logistic regression analysis (adjusted odds ratio = 1.50, 95% confidence interval 1.19-1.87,  $p < 0.001$ ). In summary, the study demonstrated that the prevalence of adult interaction with young children was low particularly in parental engagement despite a promising positive child development outcome in the cognitive domain. This study also showed positive relationships between young children and adults, whether fathers, mothers, or other family members, in fostering healthy child development outcomes. This study recommends policies supporting adult engagement with young children should be implemented.

**Keywords:** early childhood; development; cognitive skills; parents; engagement; Thailand MICS

## Introduction

The early years of a child's life lay the foundations for their future development. Various aspects of early child development, including cognitive, physical, language, socio-emotional, and regulatory capabilities, are critical for the growth of children,<sup>(1,2)</sup> and provide a firm foundation for future health and wellbeing.<sup>(3,4)</sup> Nearly 250 million (43%) children under the age of five in low and middle-income countries were at risk of not reaching their full developmental potential.<sup>(2,5)</sup> Only 75% of children in 80 countries reached an appropriate early child development.<sup>(6)</sup> The 2019 Multiple Indicator Cluster Survey (MICS) in Thailand indicated that around 93% of children younger than 5 years had obtained appropriate early child development.<sup>(6)</sup>

Parents and caregivers can help children reach their full potential by involving them in a variety of activities, including interactions through play.<sup>(7-9)</sup> Playing with, conversing with, and paying attention to children can result in positive responses and interactions with their parents.<sup>(10,11)</sup> In 2020, the average parental involvement with young children in 93 countries was 64%, whereas Thailand had a proportion of around 93%.<sup>(12)</sup> Although both mothers and fathers played with their kids, the majority of research on parent-child play interactions has emphasized maternal implications on child development, with mothers accounting for two-thirds of all parent-child interaction studies.<sup>(7)</sup> Studies on fathers have increased as a result of the societal trend surrounding fatherhood. The role of a father is crucial in many aspects of a child's development, and fathers can provide child developmental support as effectively as mothers.<sup>(13,14)</sup>

A study on parental interactions with young children in Thailand revealed that around 90% of Thai children had engaged in at least four out of six activities with their parents.<sup>(15)</sup> Another study revealed that Thai children who had appropriate parental interactions of at least four out of six interactions had a significantly higher likelihood of having an appropriate early child development than those who interacted less than four interactions with their parents (crude Odds ratio = 1.52, 95% confidence interval: 1.14–2.04).<sup>(16)</sup> However, there is limited evidence of a relationship between adult interactions with young children by diverse family members and appropriate early child development outcomes, especially in Thailand. A better understanding of this relationship can inform policy and call for action in promoting early child development by targeting specific parents or caregivers.

Therefore, this study aimed to identify the prevalence of and relationship between father, mother, and other family members in interactions with young children, and the appropriate early child development among Thai children aged 3 to 4 years.

## Method

### Study Design, Data Source and Participants

In this study, a cross-sectional quantitative design was applied. In 2019, the National Statistical Office (NSO) and the United Nations Children's Fund (UNICEF) jointly conducted the 6th MICS.<sup>(17)</sup> To represent the population at the country level, in both urban and rural settings, multi-stage stratified clustered sampling was employed. The main sampling stratum in each province was classified

as urban and rural areas. Within each stratum, systematic random sampling was conducted at the household level. From these households, 5,787 children aged 3 to 4 years old were recruited and interviewed.

### Data Collection, Questionnaire Design, and Variable Management

The NSO field personnel conducted face-to-face interviews with mothers and/or legal guardians. Each interview lasted 60 minutes on average. During the fieldwork, field staff entered data into mobile tablets instantaneously. If the mothers in the visited houses were not present during the first round of the survey visit, they were revisited.

The primary dependent variable was appropriate early child development, which was measured as the proportion of children who were on track in at least three of the four domains: cognitive (literacy-numeracy), physical, social (socio-emotional), and learning. The MICS questionnaire's 10-item module was used to calculate the early childhood development index.<sup>(17,18)</sup>

Gender, residence location, family wealth, and parental education were independent variables. There were two types of residential areas: urban and rural, and regions (Central, North, North-East, and South). The family wealth index was equally divided into five quintiles from the least well-off to the most well-off. Parental education was classified into two categories: (1) secondary education or less, and (2) post-secondary education.

Paternal, maternal, and family member (apart from father and mother) interactions with young children were the main independent variables.

Each variable consisted of six activities that es interacted with young children in the last three days: (a) book reading, (b) storytelling, (c) singing, (d) identifying or counting or drawing, (e) outdoor play, and (f) family play. We divided these interactions into two categories: (a) appropriate interactions involving at least four out of six activities with young children, and (b) inappropriate interactions involving less than four out of six activities with young children. This is consistent with the MICS report and classification.<sup>(18, 19)</sup>

### Data Analysis

The data were analyzed in two stages. To begin, descriptive statistics were used to provide an overview of the data. Second, in univariate and multivariate logistic regression analysis, paternal, maternal, and family member interactions were treated as independent variables to analyze the relationship toward appropriate early childhood development. The outcomes were expressed as odds ratios (OR) with a 95% confidence interval (CI). For all calculations, STATA software version 17 was utilized (serial license number: 401709350741).

### Ethical Consideration

The NSO granted the research team access to the survey microdata for research purposes, and the Institute for Development of Human Research Protections granted this study an ethics exemption (December 14, 2021, COE No. IHRP2021001).

## Result

### Baseline Characteristics

A total of 5,787 children aged three to four years were included in the study. As demonstrated in

Table 1, the percentage of boys and girls were similar (51% versus 49%). The proportion of children who lived in urban areas was lower than in rural areas (35% versus 65%). Children from the Central and North-East regions were the majority (31%, both). Children who lived with a family with the lowest quintile (quintile 1) were the largest (24%),

while children who lived with a family with the highest quintile (quintile 5) were the smallest (13%). The majority of children having parents with secondary education or below was larger than children having parents with post-secondary education (78% versus 22%). In addition, children's interaction with fathers in at least 4 activities was

**Table 1** Sociodemographic characteristics of children in the study

Variable	n	%
<b>Totall</b>	5,787	100.0
<b>Gender</b>		
Boy	2,950	51.0
Girl	2,837	49.0
<b>Residential area</b>		
Urban	2,045	35.3
Rural	3,742	64.7
<b>Regoin</b>		
Central	1,813	31.3
North	928	16.0
North-East	1,786	30.9
South	1,260	21.8
<b>Family wealth (quintile)</b>		
1	1,403	24.3
2	1,337	23.1
3	1,238	21.4
4	1,032	17.8
5	777	13.4
<b>Parental education level</b>		
Secondary education or below	4,483	77.5
Post-secondary education	1,304	22.5
<b>Paternal interaction</b>		
<4 activities	3,963	68.5
≥4 activities	1,824	31.5
<b>Maternal interaction</b>		
<4 activities	2,423	41.9
≥4 activities	3,364	58.1
<b>Other family member interaction</b>		
<4 activities	2,736	47.3
≥4 activities	3,051	52.7

the lowest (31%), followed by children interacting with other family members (53%) and with mothers (58%), respectively.

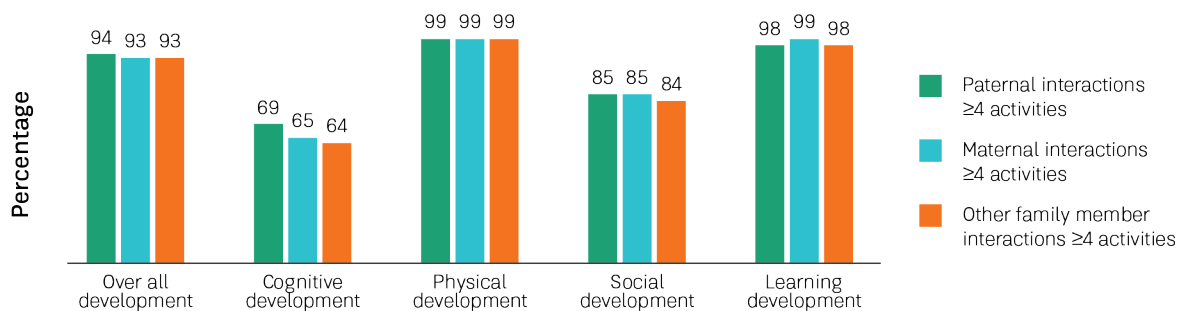
**Prevalence of child development by paternal, maternal, and family member interactions.**

Figure 1 showed the prevalence of appropriate early child development by domains (overall, cognitive, physical, social, and learning) by paternal, maternal, and family member interactions. There was a similar proportion of achieving overall appropriate early child development in each paternal, maternal, and family member interaction (94%, 93%, and 93%, respectively). A similar proportion trend in each paternal, maternal, and family member interaction was also observed in each physical (around 99%), social (84-85%) and learning development (98-99%). While the significant difference was observed in cognitive

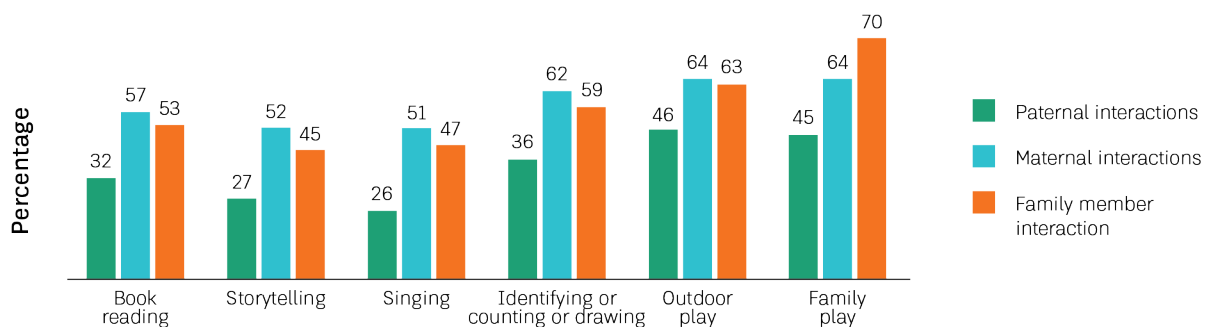
development where the highest proportion of achieving cognitive development was found in children who interacted with fathers (69%), followed by children who interacted with mothers (65%) and other family members (64%), respectively.

Figure 2 showed the prevalence of overall appropriate early child development through various activities of paternal, maternal, and family member interactions. Children who interacted with mothers or other family members in all six activities had a higher percentage of achieving overall appropriate early child development than children who interacted with fathers. The top three percentages of achieving overall appropriate early child development (between 59-70%) were found in

**Figure 1** Percentage of achieving appropriate early child development by paternal, maternal, and family member interactions



**Figure 2** Percentage of achieving overall appropriate early child development by activities of paternal, maternal, and family member interactions



identifying or counting or drawing, outdoor play, and family play with mothers or other family members.

### Univariate and Multivariate Logistic Regression Analysis of Achieving Appropriate Early Child Development

The univariate logistic regression analysis found that children who interacted with fathers for at least 4 activities tended to achieve the appropriate early child development (OR = 1.50, 95%CI 1.19-1.87,  $p < 0.001$ ) than children who interacted with fathers for less than 4 activities – see Table 2. These similar findings were found in variables of maternal and other family member interactions for at least 4 activities (OR = 1.37, 95%CI 1.13-1.66,  $p < 0.01$ , and OR = 1.31, 95%CI 1.08-1.59,  $p < 0.01$ , respectively).

For the multivariate logistic regression analysis, children who interacted with another family member for at least 4 activities had a greater chance to achieve the appropriate early child development (adjusted OR = 1.50, 95%CI 1.19-1.87,  $p < 0.001$ ) than children who interacted with other

family members for less than 4 activities – see Table 2. The chance of achieving the appropriate early child development was lower in children who interacted with other mothers and fathers for at least 4 activities (adjusted OR = 1.38, 95%CI 1.11-1.72,  $p < 0.01$ , and adjusted OR = 1.37, 95%CI 1.07-1.75,  $p < 0.05$ , respectively)

## Dicussion

This study shed light on the prevalence of and relationship between adult interactions with young children, and the appropriate early child development among Thai children under the age of five. The proportion of children who interacted with fathers was the lowest, followed by other family members and mothers. Children who interacted with fathers for at least 4 activities tended to achieve the highest appropriate early child development, while children who interacted with another family member for at least 4 activities had the greatest chance to achieve the appropriate early child development.

**Table 2** Multivariate logistic regression analysis of achieving appropriate early child development

Variable	Univariate logistic regression		Multivariate logistic regression	
	Crude Ratio	Odds95% Confidence Interval	Adjusted Ratio	Odds95% Confidence Interval
<b>Paternal interaction</b>				
≥4 activities	1.50*	1.19-1.87	1.37*	1.07-1.75
(ref: <4 activities)				
<b>Maternal interaction</b>				
≥4 activities	1.37*	1.13-1.66	1.38*	1.11-1.72
(ref: <4 activities)				
<b>Other family member interaction</b>				
≥4 activities	1.31*	1.08-1.59	1.50*	1.22-1.84
(ref: <4 activities)				

\*p-value<0.05

This study revealed a higher percentage of achieving the appropriate early child development in children who interacted with fathers, mothers, or other family members than children in general (93-94% versus 90%).<sup>(16)</sup> This can be implied the effects of interaction with adults on child development which is consistent with the findings from other studies.<sup>(7,8,16)</sup> Policies supporting parental interactions such as public communication on its positive relationship, or simple six activities (book reading, storytelling, singing, drawing, outdoor play, or family play) should be implemented to raise the level of appropriate child development.

This study also found that only one-third of children had engaged in at least four activities with their fathers (31%). The prevalence of paternal involvement was greater than the global average (23% from 93 countries in 2020).<sup>(12)</sup> Moreover, this study revealed that only 53% and 58% of children had interacted with mothers and other family members in at least 4 activities, respectively. Adult interaction through play with young children is one of the most important ways in which young children gain essential knowledge and various skills including creativity, intellectual, motor, mental, and social strength.<sup>(20,21)</sup> This low prevalence of adult interaction with young children sends a strong message for child development promoting policy. Parents in particular fathers should spend more time with their children.

Another factor that may be accountable for the low prevalence of parental interaction is the low prevalence of children staying with their fathers and mothers. The MICS 2019 reported that only 56% and 71% stayed with their fathers and mothers, respectively,<sup>(17)</sup> and was worse in children living in the North-East region where only 37% and 54% of children stayed with their fathers

and mothers, respectively.<sup>(17)</sup> In this case, findings from this study may encourage more interactions from family members with young children who are separated from their parents as it may help them to reach an appropriate development.

This study showed that children who engaged with their fathers had the highest proportion of cognitive development. This could be explained as fathers playing more than mothers while taking care of the children, and their play was more creative and entertaining.<sup>(7,14)</sup> Fathers might expose their children to new experiences that moms would deem as risky.<sup>(14,22)</sup> Creative play, combined play, free play, locomotor play, puzzle play, rough-and-tumble play, structured and semi-structured play, toy play, and video gameplay were all sorts of play that fathers engaged in with their children.<sup>(22)</sup> As a result, it was unsurprising that research had shown that father-child play had a distinct developmental influence over mother-child play.<sup>(22-24)</sup> Therefore, the key message for child development policy should be to promote more father interaction with their children.

This study also revealed the significance of interactions between young children and adults, regardless of whether they were fathers, mothers, or other family members, in promoting positive child development outcomes. This relationship was confirmed by various literature.<sup>(8,14,22,25,26)</sup> The importance of parental interaction is emphasized by the SDG indicator 4.2.3, which measures the percentage of children under 5 years experiencing positive and stimulating home learning environments.<sup>(19)</sup> As a result, parents are encouraged to spend more time with their children.

This study had both advantages and disadvantages. Two of the study's significant strengths were the employment of a sampling

approach on a national representative dataset and the collection of a large number of samples. In addition, this study employed a multivariate logistic regression analysis which helped reduce the potential confounding factors in inducing bias in the estimated results. However, there were a few limitations that must be addressed. The survey's answer was based entirely on parents' perceptions of the early child development questionnaire. A triangulation of survey data with direct child development observation or assessment will be useful for future surveys. Furthermore, recall biases and social desirability biases may affect parents' or caregivers' reporting of their interactions with their children.<sup>(27)</sup> This bias is characterized by a propensity to underreport socially unfavourable attitudes and behaviours while magnifying more desirable characteristics. Therefore, the interpretation of these findings needs careful consideration.

## Conclusion

This study shed light on the prevalence of and relationship between adult interactions with young children and the appropriate early child development among Thai children under the age of five. The study demonstrated that the prevalence of adult interaction with young children was low particularly in paternal engagement despite a promising positive child development outcome in the cognitive domain. This study also showed

positive relationships between young children and adults, whether fathers, mothers, or other family members, in fostering healthy child development outcomes. This study recommends policies supporting adult engagement with young children should be implemented.

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# ความสัมพันธ์ระหว่างพัฒนาการเด็กปฐมวัยกับการมีปฏิสัมพันธ์ในกิจกรรมร่วมกับเด็กของพ่อแม่และผู้ดูแล: การวิเคราะห์ข้อมูลการสำรวจสถานการณเด็กและสตรีในประเทศไทย พ.ศ. 2562

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สำนักงานพัฒนานโยบายสุขภาพระหว่างประเทศ กระทรวงสาธารณสุข จังหวัดนนทบุรี

## บทคัดย่อ

ช่วงขวบวัยตอนต้นของชีวิตส่งผลสำคัญต่อพัฒนาการในอนาคตของเด็ก พ่อแม่และผู้ดูแลสามารถช่วยให้เด็กเติบโตได้เต็มศักยภาพผ่านการมีปฏิสัมพันธ์ในกิจกรรมการเล่นกับเด็ก อย่างไรก็ตามการศึกษาในด้านความสัมพันธ์ระหว่างการมีปฏิสัมพันธ์ในกิจกรรมร่วมกับเด็กของผู้ใหญ่ในครอบครัวกับพัฒนาการเด็กยังมีจำกัด การศึกษานี้ มีวัตถุประสงค์เพื่อค้นหาระดับการมีปฏิสัมพันธ์ในกิจกรรมร่วมกับเด็กของพ่อแม่และบุคคลอื่นในครอบครัว และความสัมพันธ์ระหว่างการมีปฏิสัมพันธ์ดังกล่าวกับพัฒนาการสมวัยของเด็กปฐมวัยไทยอายุสามถึงสี่ปี ระเบียบวิธีวิจัยเป็นการศึกษาภาคตัดขวาง โดยใช้ข้อมูลจากการสำรวจสถานการณเด็กและสตรีในประเทศไทย พ.ศ. 2562 การสำรวจใช้วิธีสัมภาษณ์แม่หรือผู้ปกครองเด็กปฐมวัยอายุ 3 ถึง 4 ปี จำนวน 5,787 คน ผลการศึกษาพบว่าเด็กปฐมวัยมีปฏิสัมพันธ์ในกิจกรรมการเล่นอย่างน้อย 4 กิจกรรมร่วมกับพ่อน้อยที่สุด (ร้อยละ 31) รองลงมาคือปฏิสัมพันธ์กับบุคคลในครอบครัว (ร้อยละ 53) และแม่ (ร้อยละ 58) นอกจากนี้ การมีปฏิสัมพันธ์ในกิจกรรมการเล่นอย่างน้อย 4 กิจกรรมร่วมกับพ่อก็ส่งผลต่อการมีพัฒนาการสมวัยสูงที่สุดจากการวิเคราะห์ถดถอยเอกนาม (crude odds ratio = 1.50, 95% confidence interval 1.19-1.87,  $p < 0.001$ ) ในขณะที่การมีปฏิสัมพันธ์ในกิจกรรมการเล่นอย่างน้อย 4 กิจกรรมร่วมกับบุคคลอื่นในครอบครัว ส่งผลต่อการมีพัฒนาการสมวัยสูงที่สุด จากการวิเคราะห์ถดถอยพหุนาม (adjusted odds ratio = 1.50, 95% confidence interval 1.19-1.87,  $p < 0.001$ ) การศึกษานี้แสดงให้เห็นว่าการมีปฏิสัมพันธ์ในกิจกรรมร่วมกับเด็กของพ่อแม่และบุคคลอื่นในครอบครัวมีระดับต่ำ โดยเฉพาะการปฏิสัมพันธ์ร่วมกับพ่อกว่าที่พบว่าจะส่งผลดีต่อพัฒนาการด้านสติปัญญา การศึกษานี้ยังแสดงความสัมพันธ์ระหว่างการมีปฏิสัมพันธ์ในกิจกรรมของผู้ใหญ่ ไม่ว่าจะเป็นพ่อแม่หรือบุคคลในครอบครัว กับพัฒนาการสมวัยของเด็ก การศึกษานี้มีข้อเสนอแนะ คือ ควรสนับสนุนนโยบายและการสนับสนุนการมีปฏิสัมพันธ์ของผู้ใหญ่กับเด็กปฐมวัย

คำสำคัญ: เด็กปฐมวัย; พัฒนาการ; สติปัญญา; ผู้ปกครอง; ปฏิสัมพันธ์; ประเทศไทย MICS