

Factors Influencing Development of Children Aged One to Under Six Years Old

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The present study aimed at analysing factors influencing the development of children aged one to under six years in four provinces across Thailand. Two sub-districts or communities were selected from each province. The population covered in the present study were 193 children aged one to under three years and 251 children aged three to under six years, and their main caregivers. The data was collected from April to September 2000. Denver II test kit was used to test the child development and a questionnaire was used to collect family and child factors. The results of analysis using Logistic Regression found that risk factors for lower child development among children aged one to under three years were father's education at the primary school level or lower (OR = 3.0, 95%CI = 1.14, 7.9) and not having good household environments (OR = 2.9, 95%CI = 1.28, 6.8). The risk factors for lower development among children aged three to under six years were father's education at the primary school level or lower (OR = 3.57, 95% CI = 1.74, 7.32) and inappropriate child raising (OR = 2.72, 95%CI = 1.48, 4.99). Families with fathers having a low level of education, inappropriate household environments or inappropriate child raising should receive assistance so that children can have appropriate development for their age level.

Keywords: Children aged one to under six years, Development, Family

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Growth and development during the first six years are very important as it is fundamental for further development and growth. During the first six years of age, there is an important change; the nervous system and the brain grow to 80 percent of level of the adult brain and nervous system, so children at these ages have very obvious development⁽¹⁻⁴⁾. Family is the first environment for child growth and development. Good care from the family will enable children to have good physical, intellectual and psychosocial development⁽⁵⁻¹¹⁾. At the same time, other enabling and enforcing factors such as education of their fathers and mothers^(5,8,12-14), economic condition of the family^(5,13,15), family relationships^(16,17), family crisis^(11,12), family type^(8,10-12), and household conditions^(5,9,10) are also important.

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The present study, a community-based approach, aimed at analysing factors influencing development of children aged one to under six years and the results will be used as guidelines for appropriate child development.

Material and Method

A cross-sectional study was conducted in four provinces across Thailand, one province from the Northeast, the North, and the Central, and Bangkok. In each of the three provinces, 2 sub-districts were selected and one inner community and one outer community in Bangkok were selected. The study population were all children aged one to under six years and their main caregivers in the study sites. There were 204 children aged one to under three years, and 257 children aged three to under six years. The data was collected from April to September 2000. The data collecting tool was a set of questionnaires on general

Table 1. Number and percentage of children aged one to under six years, classified by level of development and age group

Development	Aged 1-< 3 years		Aged 3-< 6 year		Total	
	Number	Percent	Number	Percent	Number	Percent
Normal	149	77.2	132	52.6	281	63.3
Suspected delay	44	22.8	119	47.4	163	36.7
Total	193	100.0	251	100.0	444	100.0

information on children and their caregivers, factors on family and child raising. Child development was measured by using Denver II⁽¹⁸⁾. The factors studied were child factors including gender, rank of birth, and family factors including education of the father and mother, economic condition of the family, family relationships, family crisis during the past year, household conditions, family type, and child raising.

Information on family relationships was obtained by asking the caregivers. Information on family crises was obtained from the questionnaire on employment, sickness, drug use, death, being arrested or imprisoned, running away from home, and divorcing during the last year. The household conditions were assessed from observing security, liveliness, and material organisation that would assist child development. The questionnaire consisted of 18 questions; 2 points would be given if the condition was appropriate, 1 point for moderate, and 0 for inappropriate. The household conditions were divided into two groups-good (total score \geq 60 percent) and not good (total scores < 60 percent). For child raising, the data collecting tool was modified from the Basic Minimum Needs and Services for Children criteria as stipulated by the National Youth Bureau⁽¹⁹⁾, which consisted of 20 questions. If good child-raising was regularly practiced, 2 points would be given, 1 point was given for sometimes practising it, and 0 for never practising it. The results were divided into two groups- appropriate child raising (total score \geq 80 percent) and inappropriate child raising (total scores < 80 percent).

The statistics used for analysing factors influencing development of children aged one to under six years was Multiple Logistic Regression with significance at p-value < 0.05.

Results

Eleven children aged one to under three years were not examined due to lack of cooperation. Out of 193 children aged one to under three years, 22.8 percent had slow development. For children aged three to six years, six children were not examined, while of

the other 251 children, 47.4 percent had slow development (Table 1).

Half of the children aged one to under six years were the first child. About half of their parents had primary level education or lower. The majority of families had sufficient income, 73 percent lived in good household environments, about one third had had a family crisis during the past year, nearly half were nuclear families, and had good child raising practices (Table 2).

The Multiple Logistic Regression was used to identify the factors influencing child development

Table 2. Number and percentage of children by general characteristics and age group

Characteristics	Aged 1-< 3 years		Aged 3-< 6 years	
	n	%	n	%
Gender (n)	204		257	
- male	103	50.5	127	49.4
- female	101	49.5	130	50.6
Rank of birth (n)	204		257	
- first child	111	54.4	122	47.5
- second and above	93	45.6	135	52.5
Father's education (n)	196		247	
- primary level	84	42.9	111	44.9
- secondary level and upper	112	57.1	136	55.1
Mother's education (n)	203		254	
- primary level	103	50.7	142	55.9
- secondary level and upper	100	49.3	112	44.1
Family income (n)	204		257	
- sufficient	172	84.3	216	81.7
- insufficient	32	15.7	47	18.3
Household environment (n)	204		256	
- good	149	73.0	189	73.8
- poor	55	27.0	67	26.2
Family crisis (n)	204		257	
- yes	66	32.4	74	28.8
- no	138	67.6	183	71.2
Type of family (n)	204		257	
- nuclear	80	39.2	112	46.3
- extended	124	60.8	145	56.4
Child raising practices (n)	204		257	
- good	71	34.8	124	48.2
- poor	133	65.2	133	51.8

in three models. Model One was for the child factors, Model Two for the family factors and Model Three for both child and family factors. Since the data on family relationships was not clearly different as most of the families said that they had good relationships (92.2 percent) this variable was excluded. The results showed that factors constantly influencing development of children aged one to under three years were father's education and household environments. Children whose fathers had primary level education or lower had three times lower development than children whose fathers had higher education; and children from families with good household environments had 2.9 times lower development than children from families with good household environment (Table 3). For children aged three to under six years, factors constantly influencing their development were father's education and child raising practices. Children whose fathers had primary level education or lower had 3.57 times lower development

than children whose fathers had higher education, and children with inappropriate child raising had 2.72 times lower development than children with appropriate raising (Table 4).

Discussion

The present study found that children aged one to under six years with low development were approximately one third of the total. The proportion was even higher in children aged three to under six years. This finding corresponds to the national survey conducted by the Department of Health, Ministry of Public Health in 1999 which found that 21.8 percent of one-year-old children and 37.1 percent of four-year-old children had low development as tested by Denver II⁽²⁰⁾. Thus, there is an urgent need to strengthen child development activities.

Analysis of factors influencing child development showed that the third model was the best because the child and family factors were controlled

Table 3. Multiple Logistic Regression Analysis between child and family factors, and levels of development of children aged one to under three years

Factor	Model 1		Model 2		Model 3	
	β	AdOR	β	AdOR	β	AdOR
Female (1)	0.4175	1.52 (0.77-3.0)			0.5001	1.65 (0.77-3.52)
2 nd child or after (2)	0.3386	1.40 (0.71-2.76)			0.2156	1.24 (0.56-2.74)
Father's education: Primary or lower (3)			1.0310	2.8* (1.08-7.24)	1.1006	3.0* (1.14-7.9)
Mother's education: Primary or lower (4)			0.3358	1.4 (0.55-3.49)	0.3657	1.3 (0.51-3.33)
Insufficient family income (5)			-0.7840	0.46 (0.13-1.57)	-0.7997	0.45 (0.13-1.55)
Having family crisis (6)			-0.5364	0.58 (0.24-1.4)	-0.5003	0.6 (0.25-1.46)
Not having good household environment (7)			1.0565	2.9* (1.26-6.53)	1.0345	2.9* (1.28-6.8)
Nuclear family (8)			-0.0171	0.98 (0.45-2.11)	-0.0838	0.92 (0.41-2.06)
Low level of child bring up and care (9)			-0.3922	0.46 (0.29-1.55)	-0.4941	0.61 (0.25-1.43)
2 log Likelihood	204.94		176.93		175.06	
Significance	0.3208		0.0042		0.0071	
df	2		7		9	
n	193		184		184	

Note: * statistical significance at p-value < 0.05, Ad = Adjusted
 Number in bracket under the Adjusted OR is 95% CI
 Number in bracket after each factor is the referencing number
 1. Male, 2. 1st child, 3. Education higher than primary level
 4. Education higher than primary level, 5. Sufficient income, 6. Not having family crisis
 7. Having good household environments, 8. Extended family, 9. Appropriate child raising and care

Table 4. Multiple Logical Regression between child and family factors, and the levels of development among children aged three to under six years

Factor	Model 1		Model 2		Model 3	
	β	AdOR	β	AdOR	β	AdOR
Female (1)	-0.2475	0.78 (0.47-1.28)			-0.2988	0.74 (0.40-1.35)
2 nd child or after (2)	0.4499	1.57 (0.95-2.58)			0.5923	1.81 (0.96-3.38)
Father's education: Primary or lower (3)			1.2607	3.53* (1.75-7.09)	1.2750	3.57* (1.74-7.32)
Mother's education: Primary or lower (4)			0.4249	1.53 (0.75-3.08)	0.3570	1.42 (0.69-2.89)
Insufficient incomes (5)			-0.3737	0.46 (0.31-1.52)	-0.4080	0.66 (0.29-1.48)
Having family crisis (6)			0.3379	1.4 (0.69-2.83)	0.4000	1.49 (0.72-3.05)
Not having good household Environment (7)			0.1718	1.2 (0.59-2.04)	0.1340	1.14 (0.55-2.33)
Nuclear family (8)			-0.4076	0.67 (0.36-1.22)	-0.5503	0.58 (0.30-1.09)
Low level of child bring Up and care (9)			0.9829	2.67* (1.46-4.86)	1.0024	2.72* (1.48-4.99)
2 log Likelihood	343.293		270.379		265.951	
Significance	0.1358		< 0.001		< 0.001	
df	2		7		9	
n	251		238		238	

Note: * statistical significance at $p < 0.05$, Ad = Adjusted
 Number in bracket under the Adjusted OR is 95% CI
 Number in bracket after each factor is the referencing number (see Table 3)

simultaneously. This model was statistically appropriate for reflecting the factors influencing child development that the value of 2-log likelihood was decreased compared to the other two models in both age groups. The results revealed that the father's education influenced development of children aged one to under six years. If the fathers had higher education, they would have better access to information, be aware of information on child raising and apply this information to their children. Besides, they could obtain other factors enabling child development as well as understanding how to interact with children properly which could help in the development of the children as was found in other studies^(8,14). Household environments which covered the physical condition of the house and provision of toys associated with development of children aged one to under three years because children at this age stay at home most of the time. Thus, household environment is an important factor enabling their development which corresponds to the studies conducted by Kumar R et al, Guo G and Harris KM, and Sommer KS et al^(5,9,10). Appropriate child raising related to development of children

aged three to under six years due to complicated development of children at these ages who need proper raising to help them to develop to their full capacity. This is in line with the other studies⁽⁵⁻¹¹⁾.

Therefore, families with fathers educated to a low level or not having good household environments should be followed up and assisted closely for the long term benefit of the children. At the same time, all caregivers should have knowledge, understanding and good child raising skills so that children can be helped to have normal development.

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ปัจจัยที่มีอิทธิพลต่อพัฒนาการเด็กอายุ 1 ถึง < 6 ปี

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การศึกษานี้มีวัตถุประสงค์เพื่อวิเคราะห์ปัจจัยที่มีอิทธิพลต่อพัฒนาการเด็กอายุ 1 ถึง < 6 ปี ใน 4 จังหวัดของประเทศไทย โดยศึกษาใน 2 ตำบลหรือชุมชน ในแต่ละจังหวัด ครอบคลุมเด็กในวัยนี้ทุกคนในพื้นที่ศึกษา ซึ่งเป็นเด็กอายุ 1 ถึง < 3 ปี 193 คน เด็กอายุ 3 ถึง < 6 ปี 251 คน และผู้เลี้ยงดู เก็บข้อมูลในเดือนเมษายนถึงเดือนกันยายน 2543 ประเมินพัฒนาการเด็กโดย Denver II และสัมภาษณ์ข้อมูลทั่วไปของเด็กและครอบครัว ผลการศึกษาพบว่าเด็กอายุ 1 ถึง < 3 ปี และ 3 ถึง < 6 ปี มีพัฒนาการการล่าช้ากว่าวัย ร้อยละ 22.8 และร้อยละ 47.4 ตามลำดับ ปัจจัยที่มีอิทธิพลทำให้เด็กมีพัฒนาการล่าช้ากว่าวัยในเด็ก 1 ถึง < 3 ปี คือ การศึกษาพ่อระดับประถมศึกษาหรือต่ำกว่า (OR = 3.0, 95%CI = 1.14, 7.9) และสิ่งแวดล้อมของบ้านที่ไม่เหมาะสม (OR = 2.9, 95%CI = 1.28, 6.8) ส่วนเด็กอายุ 3 ถึง < 6 ปี ได้แก่ การศึกษาของบิดา ระดับประถมศึกษาหรือต่ำกว่า (OR = 3.57, 95%CI = 1.74, 7.32) และการอบรมเลี้ยงดูที่ไม่เหมาะสม (OR = 2.72, 95%CI = 1.48, 4.99) ดังนั้น ครอบครัวที่บิดามีการศึกษาน้อย สภาพแวดล้อมของบ้านไม่เหมาะสม และการอบรมเลี้ยงดูเด็กไม่เหมาะสม ควรได้รับการช่วยเหลือ แนะนำเพื่อให้สามารถส่งเสริมพัฒนาการเด็กตามวัยได้