

EARLY CHILDHOOD GROWTH AND DEVELOPMENT IN THAILAND, 2007

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ABSTRACT: This study aimed to describe the prevalence of growth and development of children under five years old at a national level. The national study sample included 1,548 children selected by stratified three-stage sampling in eight provinces. Tools for assessment of development was Denver II screening test which was modified into Thai language to evaluate gross motor behavior, fine motor and adaptive behavior, language behavior and personal behavior. Weight and height of the children was measured by trained health staffs. The study findings showed that the prevalence of normal development was 67.7% while the suspected delay was 32.3%. For the growth of children, it was found that 73.1 % had a normal weight for their age, 71.1 % a normal height for their age and 70.4 % a normal weight for their height. The maternal average age was 30.3 years, paternal average age 33.3 years, children birth average weight 3,048 grams and first birth order of 49.9%. Factors significantly related to normal development were paternal age, maternal education, birth weight and delivery order of children. In conclusion, in 2007, the prevalence of children under age five for normal development was 67.7% while the suspected delay was 32.3%. For growth of children under five, it was found that 73.1% had a normal weight for their age, 71.1% a normal height for age, and 70.4% a normal weight for their height.

Keywords: Children under five, growth, weight development, Thailand

INTRODUCTION

The Department of Health undertakes an important mission on promoting health of all age groups of population in Thailand. As early childhood form significant bedrock of the future population and society, they are to be well promoted to achieve normal health and growth, as well as to fully develop in all aspects. The 1999 national survey of early childhood development revealed that 71.7 % [1] of children attained normal development in all aspects, and the following 2004 survey suggested such rate of 72 % [2]. For the growth of Children under five in the year 2004 it was found that 78 % had a normal weight for their age, 78.6 % with normal height for their age and 73 % with normal weight for their height. To further improve the situation, the Office of National Education Commission had developed the Policy and Plan for Early Childhood Development [3] for 2003 – 2007. In addition, the Ministry of Public Health introduced the early childhood development policies and strategies for 2006 – 2008 [4] aiming to promote children growth and development. In 2005, the Bureau of Health Promotion under the Department of Health had launched a number of projects to promote child development [5] including for example breastfeeding promotion project, and parental school. The current study was aimed to investigate the situation of early childhood growth and development in Thailand. The results will serve

as a baseline data for further planning to address the present early childhood development problems in Thailand.

METHODOLOGY

The present study employed cross sectional survey, with number of sample size calculated by National Statistical Office Thailand as representing the national level [6]. Stratified three-stage sampling method from provinces, villages and family was used to recruit the sample. Data collection was conducted among two age groups of children: 1-3 years for 680 children, and 4-5 years for 868 children, totaling 1,548 children. The sample provinces comprised Chachengsao, Supunburi, Chiangrai, Uthaitani, Ubonrachathani, Chaiyaphoom, Nakornsithammarat, and Pang-nga. Data collectors were trained technical officers of Health Promotion Centers, Provincial Health Offices, and nurses of hospitals within respective provinces in interview with care takers. Weight and height of Children were measured by health staffs who already standardizing in measurement. Evaluation the development of children, tools used in this study was the Denver Development Screening Test II, Thai version. [7] The assessors were trained with the DENVER II, by the National Institute for Children and Family Development, interpretation was performed in four aspects of behavior: gross motor behavior; fine motor and adaptive behavior; language behavior; and personal behavior. Data analysis adopted descriptive statistics, i.e. percentage, mean, minimum value, maximum value to describe

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Table 1 Percentage of children under five, by age group, place and each aspect of growth

	Children 1-5 years			Children 1 – 3 years			Children 4 – 5 years		
	Total	urban	rural	Total	urban	rural	Total	urban	rural
Weight for Age (N= 1,548)									
Heavy	7.6	9.7	7.2	8.1	9.3	8.0	6.9	10.2	6.3
Relatively heavy	2.0	2.2	1.9	2.0	1.7	2.1	2.0	2.9	1.8
Average	73.1	75.6	72.6	72.5	76.6	71.8	73.9	74.4	73.8
Relatively light	9.7	6.9	10.2	9.9	6.6	10.5	9.5	7.4	9.8
Light	7.6	5.6	7.9	7.4	5.9	7.7	7.8	5.2	8.3
Height for Age (N=1,542)									
Tall	3.7	5.3	3.5	4.1	5.2	3.9	3.3	5.5	2.9
Relatively tall	3.4	5.3	3.0	2.8	4.1	2.6	4.1	6.9	3.6
Average	71.1	74.5	70.5	67.8	73.1	66.8	75.7	76.4	75.6
Relatively short	8.7	7.9	8.8	9.3	9.0	9.3	7.8	6.4	8.1
Short	13.1	7.0	14.2	16.1	8.6	17.4	9.1	4.8	9.9
Weight for Height (N=1,542)									
Obese	5.3	5.2	5.3	6.4	4.5	6.7	3.8	6.2	3.4
Relative obese	6.4	7.0	6.3	7.6	7.9	7.5	4.9	5.7	4.7
Above average	4.5	5.9	4.2	4.8	7.2	4.4	4.0	4.1	4.0
Average	70.4	68.6	70.7	69.6	69.3	69.7	71.5	67.6	72.2
Relatively thin	6.7	5.2	7.0	5.6	4.8	5.7	8.3	5.7	8.7
Thin	6.6	8.1	6.4	6.0	6.2	6.0	7.5	10.7	7.0

Table 2 Percentage of children under five, by age group, place and each aspect of development. (N= 1,548)

	Children 1-5 years			Children 1 – 3 years			Children 4 – 5 years		
	Total	urban	rural	Total	urban	rural	Total	urban	rural
Over all Development									
Normal	67.7	68.0	67.6	74.9	74.8	74.9	57.9	58.9	57.7
Suspected delay	32.3	32.0	32.4	25.1	25.2	25.1	42.1	41.1	42.3
Personal behavior									
Normal	93.8	93.4	93.9	93.2	94.1	93.1	94.7	92.4	95.1
Suspected delay	6.2	6.6	6.1	6.8	5.9	6.9	5.3	7.6	4.9
Fine motor and adaptive behavior									
Normal	91.9	91.3	92.0	95.3	94.8	95.4	87.4	86.7	87.5
Suspected delay	8.1	8.7	8.0	4.7	5.2	4.6	12.6	13.3	12.5
Language behavior									
Normal	78.2	80.8	77.7	86.0	86.9	85.9	67.4	72.7	66.5
Suspected delay	21.8	19.2	22.3	14.0	13.1	14.1	32.6	27.3	33.6
Gross motor behavior									
Normal	96.0	95.3	96.1	96.3	95.5	96.4	95.7	95.0	95.8
Suspected delay	4.0	4.7	3.9	3.7	4.5	3.6	4.4	5.0	4.2

general information; analysis of relationships by chi-square test.

RESULTS

Of 1,517 mothers, the mean age was 30.3 years. The minimum age was 15 years and the maximum age 48, 24.6% of mothers were younger than 25, 53.8% were between 26-35 years and 21.5% were 35 or older. There were 1,486 fathers, mean age of 33.3 years. The minimum age was 17 years and the maximum age was 66, 12.7% were 25 or younger, 53.1% between 26-35 and 34.3% older than 35. Education level of mother in the study showed that 38% had primary education or lower, 42.8 % had secondary school and 19.3% had diploma or higher education. Education level of father showed that 40.5% had primary education or lower, 41.8 % had secondary school and 17.7% had diploma or higher education. Regarding the place of delivery, most of

children delivery took place in government hospitals, 50.7% in regional hospital/general hospital, 43.5% in community hospital and 5.8% in private hospitals. 49.9 were first born children, 35% second children and 15.1% later children. They had a birth weight of 3,048 grams on average, 10.5% had a birth weight less than 2,500 grams, 76.8% had a birth weight between 2,500 – 3,500 grams and 12.6% more than 3,500 grams. The children had appropriate weight for their age (73.1 %), appropriate height for age (71.1 %), and appropriate weight for height (70.4%), Table 1.

Development assessment in the group under five showed overall normal development by 67.7 % and suspected delayed development by 32.3 %. The children group 1-3 years had normal overall development by 74.9% and group of children 4-5 years had the overall development decreased to 57.9%. Concerning each aspect of development,

Table 3 Relationship between background information of children and parents and early childhood development

	No. (%)			p -value
	Overall normal development	Suspected delayed development	Total	
Mother's age ((N=1,517)				.437
< = 25 yrs.	239(63.9)	135(36.1)	374(100)	
26 - 30 yrs.	302(68.2)	141(31.8)	443(100)	
31 - 35 yrs.	245(65.7)	128(34.3)	373(100)	
> 35 yrs.	206(63.0)	121(37.0)	327(100)	
Father's age ((N=1,486)				.016*
< = 25 yrs.	122(64.9)	66(35.1)	188(100)	
26 - 30 yrs.	238(67.6)	114(32.4)	352(100)	
31 - 35 yrs.	304(69.6)	133(30.4)	437(100)	
> 35 yrs.	306(60.1)	203(39.9)	509(100)	
Mother's education ((N=1,527)				.010*
Primary school & lower	368(63.4)	212(36.6)	580(100)	
Secondary school	418(64.0)	235(36.0)	653(100)	
Diploma and higher	215(73.1)	79(26.9)	294(100)	
Father's education ((N=1,480)				.159
Primary school & lower	383(63.9)	216(36.1)	599(100)	
Secondary school	404(65.3)	215(34.7)	619(100)	
Diploma and higher	185(70.6)	77(29.4)	262(100)	
Birth order (N=1,538)				.009*
First	521(67.8)	247(32.2)	768(100)	
Second	354(65.8)	184(34.2)	538(100)	
Third or later	132(56.9)	100(43.1)	232(100)	
Birth weight (N=1,520)				.045*
< 2,500 gm	68(57.1)	51(42.9)	119(100)	
2,500 – 3,000 gm	399(63.9)	225(36.1)	624(100)	
> 3,500 gm	527(67.8)	250(32.2)	777(100)	
Weight for Age (N= 1,521)				.120
Above average	93(60.0)	62(40.0)	155(100)	
Average	759(67.2)	370(32.8)	1,129(100)	
Below average	149(62.9)	88(37.1)	237(100)	
Height for Age (N=1,515)				.391
Above average	87(70.7)	36(29.3)	123(100)	
Average	731(65.8)	380(34.2)	1,111(100)	
Short	179(63.7)	102(36.3)	281(100)	
Weight for Height (N=1,542)				.103
Obesity	172(68.8)	78(31.2)	250(100)	
Average	711(66.1)	365(33.9)	1,076(100)	
Thin	129(59.7)	87(40.3)	216(100)	

* p < 0.05

personal behavior in the group of children 1-5 years had normal development by 93.8%, children 1-3 years by 93.2 % and children 4-5 years by 94.7%. Fine motor and adaptive behavior in the group of children 1-5 years had normal development by 91.9 %, children 1-3 years by 95.3 % and children 4-5 years by 87.4 %. Language behavior in the group of children 1-5 years had normal development by 78.2%, children 1-3 years by 86% and children 4-5 years by 72.7%. Gross motor behavior in the group of children 1-5 years had normal development by 96 %, children 1-3 years by 96.1 % and children 4-5 years by 95.7 %. (Table 2)

Analysis of relationship between information of children and their parents and early childhood development using Chi-square tests demonstrated that father's age, mother's education, birth order, and birth weight were all significantly associated with early childhood development. (Table 3)

DISCUSSION

This study results suggested a 67.7 % normal overall development and a 32.3 % suspected delayed development. The percentage of normal overall development was inferior comparing to the 2nd national evaluation in 2004 was with 72% and with 71.7% in the 1st National Evaluation 1999 for under five years childhood development surveys. However, the percentage for normal development of each aspect was higher than those in 2004 except for the result in language behavior. These findings were similar to Issaranurak et al., with a 66 % normal overall development [8].

The children had appropriate weight for their age (73.1 %), 7.6 % had a weight below average for their age, 71.1% an appropriate height for age, 13.1 % was short in height for their age. For appropriate weight for height, the average was 70.4 %, 6.6 % were thin and 5.3 % obese. In comparison, 2nd

child development survey in 2004, Bureau of Health Promotion, 4.5% were below average weight for their age, and, 5th National survey of food and nutritional status in 2003 [9], 12.2% were below average weight so it went up in 2007. Short height in 2004 was only a 9.3% but in 2007 it had increased to 13.1%. In similar, considering the child growth by weight for height, the percentage of thin children in 2004 was 6.4%, a little lower than reported in 2007 (6.6%). However, obesity was identified as increasing compared to the study in 2003 (1.9%) with 5.9% in 2004 and 5.3% in 2007, respectively. Domestic and international research demonstrated that shortness was associated with negative intellectual development of children [10].

Analysis of relationship between overall aspect of child development and demographic factor, infant birth weight, birth order, and child growth indicated that father's age, mother's education, infant birth weight, birth order, were all significantly associated with overall normal development. With respect to father's age, Racharaj [11] found that age of father and mother effected infant development. In other words, young parents were inexperienced in child raising and faced with money problem, hence lack of proper childcare, but more companionship. Whereas older parents had both experience and economic security but with less time for taking care their young children. Comparable results on mother education affecting early childhood development were described in the child development assessment by Department of Health, Bureau of Health Promotion [1], Issaranurak [8] and Khandke [12]. The current study found a 10.5 % of infant birth weight below 2,500 gr which is higher than that of the national figure of 9.1 [13]. Clinically, infant birth weight below 2,500 gr was considered a major health threat as infants in this group are at high risk of physical and intellectual abnormality. The 3,048 gr birth weight found in this study was similar to 3,070 gr [14] reported in the study by Nitaya and colleagues. Data [15] and Boardman [16] noted that a low birth weight posed negative effect on child development, a fact also observed in the present study. In addition, birth order influenced child development as illustrated in the studies by Baydar [17] and Chan-aim [18] showing that the first and last birth orders showed better development than the middle one. However, for early childhood growth no association has been found with their development for weight for age, height for age, and weight for height.

Proper development of early childhood should begin with healthy family conditions and child rearing. The government needs to take crucial role in educating parents and caregivers from pregnancy preparation to child raising, to promote child development so that children are grown up in high quality conditions and develop full skills to attain their full potential.

CONCLUSION

The current study on early childhood development suggested that 67.7 % had a normal total development and 32.3 % had a suspected delayed development. For their growth, it was found that 73.1 % had a normal weight for their age, 71.1 % normal height for age, and 70.4 % a normal weight for their height. Concerning the analysis of relationship between the overall normal development and demographic information, infant birth weight, birth order, and child growth, it was found that father's age, mother's education, infant birth weight, birth order, were all significantly associated with the overall normal development.

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