
Article

Factors Associated with the Suspected Delayed Language Development of Early Childhood in Southern Thailand

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Abstract: Many children have suspected delayed language development and need extensive support from parents and the health care team. This study aimed to investigate suspected delayed language development and factors associated with suspected delayed language development among early childhood in Southern Thailand. Children aged 24 to 60 months were recruited as study samples using stratified random sampling conducted in 23 districts and simple randomized seven sections (425 children). Instruments comprised demographic data of the children and families, The preschool temperament questionnaire, and the Language Development Screening questionnaire using developmental surveillance and promotion manual. I was collecting data from July 2020 to January 2021. Data analysis used descriptive statistics and logistic regression. The results showed that 40.9 percent suspected delayed development. Daily screen time exceeding 2 hours per day (A.O.R. = 17.30, 95% CI: 7.35-40.72), and regarding a child's temperament, moderate-to-difficult temperament (A.O.R. = 9.56, 95% CI: 5.12-17.85) were significantly associated with a suspected delay of language development. The study suggested two-way communication and appropriate responses will help develop children's language.

Keywords: factors; suspected delayed language development; early childhood

1. Introduction

Language capacity is an integral part of the life of children. After six months, children's ability to distinguish sounds will have improved, followed by development concerning lexical resources and fast word interconnection from 1.5 to 3 years ⁽¹⁾. These skills significantly contribute to the development of children in early childhood in the long run. Language development or linguistic development can categorize into two aspects: receptive language comprehended through sensory nerves obtaining the input from hearing and sight. With this, a child can differentiate differences in sounds, interpret them and grasp their meanings. Turning to expressive language is a verbal communication of intentions. World Health Organization (WHO) disclosed that 8 percent of children under five years of age exhibit non-age-appropriate development ⁽²⁾. In Thailand, data on the overall development of children in early childhood in 2017 suggested that 23 percent of the children in early childhood exhibited suspected delayed development. More specifically, the children, 39.87 percent questioned postponed development, and 26.63 imagined delayed linguistic development in Health Area 11, Southern Thailand ⁽³⁾, higher than the overall national proportion.

Language development reflects how a child's brain and nervous systems function continuously through each inherent developmental stage ^(4,5). Studies on a child's linguistic progress demonstrated that preterm infants underwent relatively more delayed development during the early years, especially in the domain of prescriptive language use than those born in full pregnancy term ^(6,7). The children aged 18 to 36 months found that the preterm children have more linguistic limitations than the full-term. The preterm, for example, acquired less than 50 vocabularies and had difficulty piecing together the

vocabularies. The preterm children delayed linguistic development, some of whom experienced it both in using and understanding the language⁽⁸⁾. Additionally, studies regarding the relationship between genders and linguistic abilities suggested that female children demonstrate linguistic development at a more incredible speed than male children^(9, 10).

Temperament is an innate, intrinsic model unique to each child with outstanding resistance to change⁽¹¹⁾. Children with easy temperaments can define as effective emotional control leading to positive social interactions. Delayed linguistic ability undermines children's temperament and personality⁽¹²⁾. On the other hand, those with difficult temperaments lessen others' interest in talking to them, which, consequently, crucially compromises the child's expressive language development and develops susceptibility to anxiety when exposed to unacquainted surroundings. Hence, change from a familiar home to that of a school can become a catalyst for mutism in children^(13, 14).

Caregivers or parents play a significant role in enhancing children's linguistic ability in early childhood because they most provide understanding, care, connection, and interaction with children. Previous studies showed that predictive factors of age-appropriate development in early childhood are the mother's age: chances for mothers aged 20-35 years and above 35 years to give birth to age-appropriate children decreased by 18 and 33 percent, respectively, compared to the mothers less than 20 years. That is because such a group of mothers is a working-age population meaning less time to care for their children. As a result, their children are prone to suspected delayed development⁽¹⁵⁾. The studies conducted with preterm infants in low-income families found that mothers' age attributed to delayed development.⁽¹⁶⁾

On the contrary, Phongphetdit & Authawee (2020) found that mothers aged 20 to 35 could raise a child to the age-appropriate development stages because, as part of the working-age population, they were able to seek knowledge and access a wide variety of media easily and instantly. Nevertheless, under some circumstances, parents' or caregivers' limited abilities and skills complicated the orientation of the home environment to cater to a child's development, not to mention today's technological dynamics evolving by leaps and bounds. Children in early childhood have become more attached to screen gadgets such as smartphones, tablets, computers, or even televisions⁽¹⁷⁾. The American Academy of Pediatrics pointed out that children aged 2 to 5 years could spend one hour a day watching quality media. Caregivers usually allow the children to watch television or surf the internet alone for entertainment, or sometimes, to appease a child's tantrums. These all result in the children's delayed linguistic abilities⁽¹⁸⁾. The problems and the importance of the factors mentioned above concerning a child's development, including caregivers, children, environment, or changing social conditions, influence the children's development, however, given the absence of studies on children's language development in early childhood in the South of Thailand. The researcher acknowledged the importance of investigating the situations related to language development and the factors associated with delayed language development in early childhood. To serve as empirical data that can be applied for language development so that children in early childhood reach language developmental milestones.

2. Method

2.1. Participants

The research is a descriptive study. I collected data from the well-baby clinics in the Tambon Health Promoting Hospitals from July 2020 to January 2021. The research population comprised children aged 24 to 60 months, parents or caregivers residing in Southern Thailand. The researchers randomized assigned to Nakhon Si Thammarat Province. The Nakhon Si Thammarat Province's children population totals 92,973 persons. The researchers calculated sample size using the Krejcie and Morgan formula⁽¹⁹⁾, generating 382 research samples. The researchers added about 10 % to prevent the collection of incomplete data. Stratified random sampling was employed with 23 districts,

followed by Simple random sampling to select seven districts. Then, two of the Tambon Health Promoting hospitals were selected, yielding a group of 425 research samples. The inclusion criteria specified conditions for the caregivers and the children: caregivers may be parents or primary caregivers, anyone living with the child, and providing regular care for longer than six months. The caregivers must also be 18 years of age or above, be of Thai race and Thai nationality, and communicate and understand Thai. The children must be within an age range of 24-60 months, visit the well-baby clinic for vaccination, and be free from congenital diseases.

2.2. Data collection tool

Research instruments are as follows:

1. The demographic data questionnaire of the children, the parents or caregivers, and families (14 items)

- 1.1 Demographic data of the children, including genders, religions, age, gestational age, delivery methods, birth weight, the average number of hours spent watching television, videos, smartphones, tablets, telephone, and computer games per day, and child temperament.

- 1.2 Demographic data of the parents or caregivers and families, including age, relationship with the children, family's characteristics, levels of education, occupations, and monthly household income.

2. The preschool temperament questionnaire: the researchers employed the research instrument developed by Nattaya Sangsai et al. (2011) with a reliability value of .80 and content validity of .83. The questionnaire consists of 36 items featuring characteristics of 6 aspects of temperament: Activity level (8 items), Rhythmicity or regularity (5 items), Approach/ withdrawal (5 items), Adaptability (5 items), Intensity of reaction (7 items) and Mood (6 items). Questions will be using a 5-point rating scale with a score range of 36-180. Interpretations of the children's temperament cluster into two groups, those of whom were scoring 36-132 defined as a child with moderate-to-difficult temperament, and those scoring between 133-180 categorized as a child with easy temperament.

3. The language development screening questionnaire: The researcher screened a child's development with the assistance of the Developmental Surveillance and Promotion Manual (DSPM), divided into Receptive language and Expressive language developed by Siriporn Kanchana et al. (2015). The questionnaire yielded a sensitivity value of 96.04 and a specificity value of 64.67. The interpretation of age-appropriate development (1 score) and suspected delayed (0). As demonstrated in the Cronbach's alpha, the questionnaire's reliability was 0.81.

2.3. Statistical analyses

Data were analyzed using the SPSS software version 24 with the statistical significance set at .05. The number of suspects' delayed language development, and demographic data, were analyzed using frequency distribution, percentage, mean, and standard deviation (S.D.) The factors' correlation with suspected delayed language development using binary logistic regression.

3. Results

Regarding the children's language development in early childhood, 59.1 percent exhibited age-appropriate development while 40.9 suspected delayed development, as shown in Table 1.

Table 1. The number and percentage of language development among 24-60 months children (n=425).

Language development	Number	%
Children with normal	251	59.10
Children with a suspected delay	174	40.90

The majority were Buddhists (72 percent) with an average age of 40 months. 397 of the children (93.41 percent) were full-term infants, and 76 percent or more than one-third (48%) were born through a virginal delivery. The children's birth weight fell into a range of 2,500 to 3,000 grams. For average hours of daily screen time (i.e., television, videos, smartphones, tablets, or computer games), more than half of the children in early childhood (73.60%) spent less than 2 hours. The children' demonstrated easy temperament, and the children's average temperament score was 105.99, as displayed in Table 2

Most caregivers were from 25 to 35 years of age (58.60%), more than half of the caregivers were mothers (80.24%). 62.82 percent had a single-family, 53.41 percent obtained a secondary school degree, and almost one-third (28%) were unemployed. Finally, more than half (53.64%) earned 10,000-20,000 per month, as displayed in Table 3.

3.1. Demographic data of children

Table 2. The number and percentage of children are categorized by gender, religion, age, gestational age (weeks), type of delivery, birth weight (g), daily screen time (n= 425).

Demographic data of children	Number	%
Gender		
Male	184	43.29
Female	241	56.71
Religion		
Buddhism	306	72.00
Islam	119	28.00
Age groups (Range 24-60, \bar{x} = 40.90, S.D. = 9.04)		
24-36 month	152	35.76
37-48 month	183	43.06
49-60 month	90	21.18
Gestational age (weeks)		
< 37	28	6.59
≥ 37	397	93.41
Type of delivery		
Normal	323	76.00
Cesarean	102	24.00
Birth weight (g)		
< 2500	71	16.71
2500-3000	204	48.00
> 3000	150	35.29
Daily screen time		
< 2 hr.	313	73.60
>2 hrs.	112	26.40
Child temperament (Score range 59-169, \bar{x} = 105.99, S.D. = 29.84)		
Easy temperament	202	47.50
Moderate to difficult temperament	223	52.50

Demographic data of parents or caregivers

Table 3. The number and percentage of parents or caregivers categorized by age, family characteristics, relationship with the children, levels of education, occupations, and incomes (n= 425).

Demographic data of caregivers	Number	%
Age (year)		
< 25 years	71	16.70
25-35 years	249	58.60
> 35 years	105	24.70
Family characteristic		
Single-family	267	62.82
Extended family	158	37.18
Relationship with the children		
Father	34	8.00
Mother	341	80.24
Grandmother/ Grandfather	44	10.35
Other	6	1.41
Levels of education		
Primary education	58	13.65
Secondary education	227	53.41
Diploma education	56	13.18
Undergraduate / Graduate degree	84	19.76
Occupation		
Agriculturist	82	19.29
Government employee/ State Enterprises	28	6.59
Employment	23	5.41
Private business	66	15.53
Trader	107	25.18
Unemployed	119	28.00
Household income/ month (T.H.B.)		
< 10,000	138	32.47
10,000 – 20,000	228	53.64
20,001 – 30,000	52	12.24
> 30,000	7	1.65

The binary logistic regression analysis suggested that the children with more than 2 hours of daily screen time were significantly associated with a suspected delay of language development (A.O.R. = 17.30 (95% CI: 7.35-40.72)). In terms of temperament, the children exhibiting moderate-to-difficult character associated with a suspected delay of language development significantly (AOR. = 9.56; 95% CI: 5.12-17.85). Finally, genders, gestational age, and caregivers' age groups were not associated with a suspected language development delay, as displayed in Table 4.

Table 4. Binary logistic regression analysis for exploring factors associated with suspected delayed language development (n= 425).

		Language development status		Crude OR (95% CI)	Adjusted OR (95% CI)
		Normal n(%)	Suspected n(%)		
Gender	Female	150 (62.20)	91 (37.80)	1	1
	Male	101 (54.90)	83 (45.10)	1.35 (0.91-2.00)	1.32 (0.75-2.33)
Gestational age (weeks)	≥ 37	237 (59.70)	160 (40.30)	1	1
	< 37	14 (50.00)	14 (50.00)	1.48 (0.68-3.19)	1.33 (0.44-4.02)
Daily screen time	< 2 hr.	244 (78.00)	69 (22.00)	1	1
	> 2 hr.	7 (6.25)	105 (93.75)	53.04 (23.58-119.28)	17.30 (7.35-40.72)*
Age of caregivers (year)	< 25 years	38 (53.52)	33 (46.48)	1	1
	25-35 years	152 (61.04)	97 (38.96)	1.20 (0.65-2.20)	0.79 (0.36-1.73)
	> 35 years	61 (58.09)	44 (41.91)	0.88 (0.55-1.40)	1.10 (0.46-2.62)
Child temperament	Easy temperament	185 (91.58)	17 (8.42)	1	1
	Moderate to difficult temperament	66 (29.60)	157 (70.40)	25.88 (14.58-45.95)	9.56 (5.12-17.85)*

*p< .01

4. Discussion

The analysis result yielded in the research sample group of average 40 months-old children (\bar{x} = 40.90, S.D.= 9.04), mainly delivered full-term and having age-appropriate birth weights. A mother assuming the role of the primary caregiver in a single-family and obtaining a secondary school degree suggested that in terms of the language development situation of Thailand's Southern children in early childhood, nearly half exhibited a suspected delay of language development (40.90%). The analysis further illuminated that the children spending more than 2 hours of the daily screen time were significantly associated with a suspected language development delay. Furthermore, the children categorized as having moderate-to-difficult temperament exposed to a suspected delay of language development compared to those with easy character. At the same time, genders, gestational age, and caregivers' age groups did not associate with a suspected language development delay.

This study suggested that children spending more than 2 hours of the daily screen time were associated with a suspected delay of language development. It was consistent with the American Academy of Pediatrics and World Health Organization that advised

against spending screen time on children below two years of age or a daily maximum 1-hour limit; only quality programs will be allowed. ⁽²⁰⁻²²⁾ That is due to the fast-paced technological evolution, which has made technologies more accessible for children, resulting in the children's passive interaction in a non-virtual domain. In addition, a prolific increase in young children's screen time may derive from multiple causes, one of which is essentially caregivers and home environment. If, for instance, a mother permitted a child screen time even in the mother's presence during meals as a common stratagem to stop the child's naughty behavior or manipulate the child's behavior rather than doing other activities, increased screen time will subsequently follow. ^(23, 24) In the context of a traditional Thai family, some children live in an extended family together with their grandparents, perceiving the use of screen time as entertainment for grandchildren and, as a result, indulging their cravings for screen time without experiences in operating these gadgets themselves ⁽²⁵⁾. In this study, in most cases, it found that the caregivers or parents filled the time during which they were away for a full-time job schedule, tending to house chores with the use of gadgets – the simplest is all-day television watching. The reason was rooted in the parents' need to assume other responsibilities besides caring for a child. Unaccompanied children might draw to programs featuring age-inappropriate content ⁽²⁶⁾. Exposure to excessive screen time (> 6.5 hours/day) via television, mobile phones, + iPads/tablets or computers is likely to inhibit verbal interaction or communication between the child and the caregiver resulting in even greater susceptibility to a suspected delay of language development ^(27, 28). Therefore, over the period from 0-5 years, children's learning should originate from outdoor activities, physical contact, or storytelling because the input received through the sensory channels involved relatively accelerates a child's learning progress on the acquisition, problem-solving, and enthusiasm to learn more than the screen-delivered ^(18, 24).

In addition, this study suggested that the children with moderate-to-difficult temperament were associated with a suspected delay of language development compared to those with easy character. It may be related to the fact that character in children in early childhood is mainly governed by genetic predispositions even though it becomes gradually nurtured with older age. Children's character is indicative of how they respond to the environment: those with moderate-to-difficult character may cause the caregivers to deliver inappropriate care, followed by an even worse temperament ⁽²⁹⁾. The difficult temperament impedes parenting and cares in almost every sphere, including eating, sleeping, excreting, and temper control. There is a possibility that this may be detrimental to a child's ability to learn and control emotions ⁽³⁰⁾ which decreases people's desire to converse with the child, potentially hindering a linguistic capacity. Over the period between 2 to 5 years, children naturally begin to make evident linguistic progress both in receptive and progressive language to convey meanings, express opinions, and live with others through reception, interpretation, decision making, and expression or gestures. Equipped with an easy temperament, a child shall constantly be in a good mood, quickly get along with others, acquire novel information, and effectively communicate with peers, solidifying the child's linguistic ability to a greater extent. Besides, caregivers can offer stimuli, assistance, and cares to promote children's linguistic development with a problematic temperament to communicate better ⁽³¹⁾. Caregivers' child caring strategies that emphasize a family's relationship, prompt attention to a child's needs, closeness, and attachment also positively affect the child's language development ⁽³²⁾.

On the contrary, other factors including genders, gestational age, caregivers' age groups did not associate a suspected language development delay. The 174 children in this study had a suspected language development delay, 37.80% were females, and 45.10% were males. The research reports suggested that male children were more susceptible to suspected delayed language development than female counterparts. It is consistent with the study of the correlation between anthropometric indices at birth and developmental delay in children aged 4-60 months in Isfahan. There was an increased rate of suspected delayed language development among the male children ⁽³³⁾. Despite lack of tangible evidence, the climbing tendency of suspected delayed language development in male

children is more than that in female children since abnormalities of X-linked are common among males. These are involved in a child's suspected delayed language development^(34, 35). In this study, 90 percent of the research samples were born full-term. So gestational age did not dominate a suspected delay in language development. But some studies have shown that infants born premature, weighing between 1,500 to 1,999 grams and delivered using a cesarean delivery, are prone to delayed development⁽³⁶⁻³⁸⁾. Most caregivers were within a 25–35-year age range, belonging to the working population, so they were more prepared for proper child-raising. Chances for mothers above 35 years to have a child with suspected delayed development higher than their 25-35 years-old counterparts. However, children born to young mothers have an increased rate of exhibiting suspected delayed development in all aspects at 60 months. Such risk shall reduce when born to older-aged mothers and correlated with a health condition and better development of children in early childhood^(39, 40).

5. Conclusions

Delay in language development may be difficulties in learning and a short attention span depriving the child of learning abilities in successive advanced levels. The study results revealed that the factors associated with a suspected delay in language development in early childhood include daily screen time exceeding 2 hours and a child's temperament–moderate-to-difficult temperament. Therefore, nurses, interdisciplinary teams, caregivers, and others involved should be aware of these factors and give them to reduce the factors and promote a child's age-appropriate development by two-way communication and appropriate responses will help develop children's language.

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