

A Study of the Holistic Approach to Child Development According to the DIR/Floortime Concept: Banlat Hospital, Phetchaburi

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Abstract

In 2014, the early childhood developmental screening program at Banlat Hospital found 120 children with suspected developmental delay. After parents were advised about promoting child development at home, the one month follow up screening showed that the majority were graded as normal, while 13 children (11%) continued to have developmental delay. To help improve these children's developmental functions, the researcher applied the Holistic approach to child development program, based on the DIR/Floortime concept in the community. This research was a pilot study with one group, pre-post test design. Subjects were 4 children with developmental delay, and 2 children with autism. All parents agreed to spend 10 hours/week interacting with the child. The community model consisted of 1) parent training (1 day) on the Holistic approach to Child Developmental Program, based on the DIR/Floortime concept 2) parent group support (once a month) 3) home visit (once a month) and 4) developmental intervention at the clinic (once a month). Pre-post test data was collected by using; Questionnaire, Social-emotional Growth Chart (SEGC), Developmental Skills Inventory (DSI) and Parenting Stress Index (PSI), Activities at home record. The study was done over 3 months. Research findings revealed that all four children with developmental delay showed improvement in both functional emotional development, and

receptive and expressive language skills. The two autistic children showed improvement in functional emotional development, but not in developmental skills measured by DSI. All parents were less stressed. The improvement, in SEGC and PSI scores of all 6 children, was statistically significant. This pilot study demonstrated preliminary evidence of positive results in implementing a Holistic Child Development program in the community. The model emphasized parents' participation in promoting child development at home, and nurse practitioners working alongside parents to support a learning environment.

Keywords : Holistic approach, Delayed Development, Autistic, DIR/Floortime

Introduction

Children reach maturity when they have complete physical, mental, emotional, social and intelligence development. It is, therefore, essential to promote and encourage children's continuous development (Kotchabhakdi, Sansakunachai, Roongpraiwan, Teeranet, Fuengfoo, & Sujaritpong, et al, 2011). Child development in early childhood (from birth to 5 years of age) is a very important foundation in the quality of public health. In Thailand, Samai Sirithongthaworn et.al studied the developmental norms for children from birth to 5 years of age living in Chiang Mai and identified an

order of assessment items as a child development tool for children from birth to 5 years of age (Sirithongthaworn, Narkpongphun, Pongtaweeboon, Itsarapong, Kasemsuk, Pila., ... et al., 2012). Any disorder, particularly concerning development problem risk, must be diagnosed, taken care of, and assisted immediately, in order to prevent delayed development problems. Delayed development in preschool children was one of the problems in early childhood care and services in Thailand. Recent national screening of child development found 27.5 % of preschool children with suspected developmental delay. The developmental domains that were most delayed were language and fine motor skills (Department of Mental Health, 2014). In 2014, the early childhood developmental screening program at Banlat Hospital found 120 children with suspected developmental delay. Most of them were caused by parental lack of time, knowledge and skills to provide developmental promotion. After the parents were advised about promoting the child's development at home, the one month follow up screening showed that 107 children (89 %) had progressed to age appropriate development (Department of Family Clinical Practice and Primary Care Service, 2014). The remaining 13 children continued to fail the developmental screening program, and had to be referred to a pediatrician at other specialty hospitals for further diagnosis and early intervention service. Banlat hospital is a small community hospital. The hospital lacked specialized health care personnel who were experts in treatment and early intervention. In addition, there were many problems in the families of children with delayed development and children with special needs. Firstly, many parents found it inconvenient to take the child to the specialty hospital, as it took too much time, or some families couldn't afford the traveling expense. Secondly, many parents were lacked knowledge and skills for taking care of their child.

Thirdly, some parents had improper attitudes towards helping their child. They thought that sending the child to a special hospital or school was enough and therefore, there was no need to have any special activity for their child's development at home. Lastly, most of the families were stressed in providing care. The Holistic child development program was developed by the National Institute for Child and Family Development (NICFD), Mahidol University. The program was based on the DIR/Floortime concept which emphasized shaping parental attitude by looking at the child in a new way, by understanding the child's functional emotional development (D), brain-based individual differences (I), and the importance of love, warmth and good relationships in the family (R). The program also provided parents with the skills to promote their child's development through play-based interaction and the routine activities of daily life. (National Institute for Child and Family Development, 2015)

In Thailand, Pajareya (2011), studied DIR/ Floortime in autistic children and found that educating parents about promoting child development based on the DIR/Floortime concept could promote the children's social emotions after a 3 months period and reduce the parents' stress (Pajareya & Nopmaneejumruslers, 2011). Another study from Taiwan applied DIR/Floortime in the home program, where parents spent their time interacting with the child at home. They were coached by therapists twice a week for 10 weeks. It was found that mothers had changed their perception toward parent-child interaction positively and this approach also increased the autistic child's quality of social interaction and adaptive behaviors (Shu-Ting, Yea-Shwu, Yung-Jung, Peichin, Shin-Jaw & Ling-Yi, 2014). In this pilot study, the researcher had integrated the Holistic Child Development Program (NICFD) into the community.

Objectives

The purpose of the study was to investigate the effect of this community early intervention model on parents and the child with delayed development and the child with special needs.

Methods

Study Design

This was a pilot study with one group pre-test and post-test design. Data was collected both in terms of quantity and quality.

Patients

Children with developmental delay or special needs who came for developmental intervention at the Child Developmental Promotion Clinic, Banlat Hospital from October 2014 to March 2015 and met the inclusion and exclusion criteria below.

Inclusion Criteria

- 1) Aged between 1-5 years old.
- 2) Parents were available to provide play activities at home for at least 10 hours/week
- 3) Residents of Banlat district, Phetchaburi Province
- 4) Parents agreed to participate in the program

Exclusion Criteria:

Children with blindness, deafness, or severe medical illnesses

Ethical Review

The study design, protocol and consent forms were reviewed and approved by the Ethical Review Board, Mahidol University. Written informed consent was obtained from the child's parents or guardians before participating in the study.

Intervention Program

The community early intervention model consisted of

1. Parent training: The Holistic approach

to child development program based on the DIR/Floortime concept provided by developmental pediatrics (Certified DIR- Professional, Profectum Foundation) and team. Training content included the following:

- Understanding functional emotional development (D) through "Play with me": this focused on promoting fundamental skills for the child's attention, engagement, gesture communication, language and thinking skills, based on the child's needs and motivation.
- Understanding the child's individual difference (I) through "Mom understands me": this focused on activities that help parents to understand individual differences, and the child's behavior, based on sensory motor differences.
- Foster relationship (R) through "Mom loves me": using playful or comforting parent-child interaction to promote relationship, both during positive or negative emotional ranges.

2. Parent Group support: Activities focused on sharing experiences from each family, addressing any feelings and concerns, questioning and reflecting. Group support was done by a nurse practitioner every 1.5 months at the clinic or in the community.

3. Home visit: observing parent-child interaction, coaching and modeling play based interaction, suggesting home and routine activities to promote holistic child development. The nurse practitioner visited each family once a month.

4. Developmental intervention with the child, at the Child Developmental Promotion Clinic, Banlat Hospital, once a month.

The nurse practitioner in this research was trained in The Holistic Approach to Child Development Program based on the DIR/Floortime Concept by the National Institute for Child and Family Development.

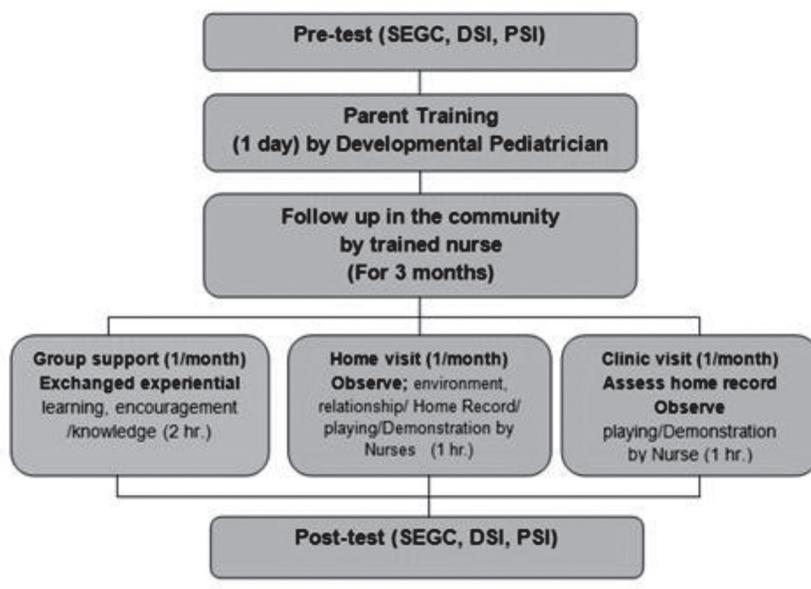


Fig 1: The community early intervention model based on the DIR/Floortime Concept

Assessment Procedure

Pre-post tests were administered at the start and end of the research project. There were 5 measures, 1) the questionnaire, 2) Greenspan social emotional growth chart (SEGC), 3) Developmental skills inventory (DSI) 4) Parenting stress index (PSI) and 5) Activities at home record.

The questionnaire

A questionnaire was constructed for collecting information including the demographic characteristics of the children, namely age, gender, diagnosis, severity of disability, number of siblings and the child's clinical profile. The demographic characteristics of the parents included age, gender, education level, marital status, number of children, and employment status. Data was obtained at the beginning of the first session.

Greenspan Social-Emotional Growth Chart (SEGC)

The Greenspan Social-Emotional Growth Chart (SEGC) is a screening tool to measure social-emotional milestones in young children. There

were six developmental stages as 1) Self-regulation and interest in the world, 2) Engage in relationship, 3) Two-way communication, 4) Complex communication; using interactive emotion signals and gestures to communicate and solve the problem, 5) Emotional ideas; using symbols or ideas to convey their intentions, feelings and express more than basic needs and 6) Emotional thinking. This 35-item questionnaire could be completed by parents, primary caregivers, or therapists. The questionnaire took about 10 minutes to complete. There was an internal consistency and reliability average of .90 for social-emotional, and .83 for sensory items (Greenspan, 2004).

Developmental Skills Inventory (DSI)

A Developmental Skills Inventory (300 DSI items) was used to measure the child's developmental skills from newborn to five years old. This tool is widely used in community hospitals in Thailand. The DSI was developed by the Rajanukul Institute, Department of Mental Health, Ministry of Public Health. It evaluated 5 developmental skills including (1) Gross Motor: GM (2) Fine Motor: FM (3)

Receptive Language: RL (4) Expressive Language: EL and (5) Personal Social: PS. Interpretation was expressed as developmental age scores (by month). The inventory took about 50 minutes to administer for each child (Rajanukul Institute, 2010).

Parenting Stress Index-Short form (PSI)

A Parenting Stress Index-Short Form (PSI/SF) was designed to assess parents' perception of stress. This index contained 36 items. Each item was rated on a five-point Likert scale (from strongly agree to strongly disagree). Total scores at the 16th to 84th percentiles were in the normal range, 85th to 89th percentiles were considered as high, and 90th

percentiles or higher were considered as clinically significant. Parents could complete the questionnaire within 10 minutes (Abidin, 1990).

Activities at Home Record

An Activities at Home Record Form was developed for parents to keep record of child development promotion at home and observe children's changes over 3 months. Parents' activities, according to the Holistic Child Development Promotion Program based on the DIR/Floortime Concept, were recorded. It took about 10 minutes to complete the record.

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Fig 2: example of Activities at Home Record

Results

Patients

From the screening program in 2014 at Banlat Hospital, there were 13 children who continued to have developmental delay and needed further diagnosis and treatment. However, only 6 subjects were applicable regarding inclusion criteria (the other 7 children were not included as

4 families couldn't undertake 10 hours/week play activities at home, 2 children were sick, and 1 child had Down syndrome with intestinal obstruction).

Basic characteristics

The children's ages were from 22 months to 55 months. Four children had developmental delay, and two children were diagnosed as hav-

ing autistic spectrum disorder. There were 5 boys and one girl. The primary caregivers were 4 mothers and 2 grandmothers, with a mean age of 37 years. Most of the caregivers were farmers, as

well as employees and a housewife. The average household income was around 6000-10,000 baht/month. (Table 1)

Table 1: Gender of children and caregivers

Children				Parents					
Age No. (Month)	Gender	Diagnosis	Family member	Age (yr.)	Major caregiver	Career	Education	Family income / month (baht)	
1	22	Boy	Delayed development	4	33	Mother	housewife	High Vocational Certificate	10,000-15,000
2	22	Girl	Delayed development	4	42	Grand mother	farmer	elementary	5,000-10,000
3	30	Boy	Delayed development	8	19	Mother	employee	secondary	15,000-20,000
4	30	Boy	Delayed development	2 (divorce)	42	Mother Grand	employee	secondary	5,000-10,000
5	55	Boy	ASD	6	45	mother	farmer	elementary	3,000-5,000
6	50	Boy	ASD	4	42	Mother	farmer	elementary	3,000-5,000

Social-Emotional Growth Chart (SEGC)

All children showed improvement in the SEGC score (Table 2). Case study number 2 and 4 got the highest improvement scores. The paired t-test comparing the mean of the pre and post SEGC scores was statistically significant at $p < .01$.

Developmental Skills Inventory (DSI)

The pre-test study showed that all 6 children had delay in receptive and expressive language skills (RL & EL). Numbers 3 and 4 children had delayed personal social (PS) and fine

motor (FM) skills, respectively. After the treatment program, all four children with developmental delay (case 1-4) showed improvement in RL and EL, three of them also showed improvement in FM and PS skills. The 2 autistic children (cases 5&6) didn't show improvement in developmental skills measured by the DSI during this 3 month duration (Table 3). Mean average values of receptive language (RL), expressive language (EL) and personal social (PS) developments were increased statistically (Table 3).

Parenting Stress Index-Short Form (PSI)

All 6 parents showed reduction in stress scores after the treatment program (Table 2). For the percentile score, all the parents were in the

normal range, both at the pre-test and post-test (16th-84th percentiles). The paired t-test comparing the mean pre and post PSI scores was statistically significant at $p < .01$.

Table 2: Total scores of the Social-Emotional Growth Chart (SEGC) and Parental Stress Index Short Form (PSI)

No.	Social-Emotional Growth Chart		Parenting Stress Index-Short Form			
	Total Growth chart score		Total stress		Percentile (%ile)	
	Pre	Post	Pre	Post	Pre	Post
1.	95	113	107	89	82	70
2.	100	129	95	77	74	56
3.	119	125	46	44	6	4
4.	72	102	103	88	78	68
5.	80	102	96	80	74	60
6.	78	102	104	88	82	68

Table 3: Total scores of Developmental Skills Inventory (DSI)

		Developmental Age (months)									
AGE		GM		FM		RL		EL		PS	
No.	(Month)	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
1	22	27	31	23	26	15	28	16	21	25	27
2	22	26	27	23	24	12	20	15	20	25	28
3	30	35	35	26	28	24	28	23	29	34	34
4	30	34	36	20	20	11	14	13	16	22	26
5	55	48	48	23	23	13	13	18	18	40	40
6	50	55	55	20	20	22	22	23	23	37	37

Qualitative Finding

Table 4 showed qualitative data derived from the interviews, additional observations during home visits, and activities at home record. Family changes were obvious - parents spent more quality

time interacting with their child in various playful activities and following the child's lead. They also designed games and local activities according to the differences in styles and the family's environment.

Table 4: Family changes and home activities based on community circumstances

No.	Family change		Samples of activities/game based on community circumstance
	Parents	Children	
1	<ul style="list-style-type: none"> - learn to allow children to lead the game and join in. 	<ul style="list-style-type: none"> - start to play with their peers. - use more gestures and some short words. 	<ul style="list-style-type: none"> - airship - bubble blowing - swimming - feeding ox
2	<ul style="list-style-type: none"> - Able to handle the child's emotions and soothe. - know how to manage the child's tantrum and calm the child. - join the game and let their child lead. 	<ul style="list-style-type: none"> - less isolated - more interested in playing with other children. - less crying and less banging of the head 	<ul style="list-style-type: none"> - listen to a story read by grandfather - play in a childish way - running in the field with grandparents and sister - sing and dance together
3	<ul style="list-style-type: none"> - Emphasize short words during games. - learn to observe their child's needs. 	<ul style="list-style-type: none"> - more joyful when playing with their parents. - express more emotion - use short words to solve problems. - can role play. 	<ul style="list-style-type: none"> - soccer - riding on the blanket, chasing, water pistol and enjoy washing the car with dad.
4	<ul style="list-style-type: none"> - spend more time playing in a childish way - wait for the child to initiate communication - more acceptance and understanding of the child 	<ul style="list-style-type: none"> - express more emotion, more joyful and happier with mom. - can use more complicated gestures. - learn to be with peers. 	<ul style="list-style-type: none"> - chasing - hide and seek - hug and kiss - eating together and sharing a snack.
5	<ul style="list-style-type: none"> - allow the child to decide what to play - less directing of the child to the activity 	<ul style="list-style-type: none"> - calmer, easier to be soothed . - express different facial emotions. - use more gestures. 	<ul style="list-style-type: none"> - fry an egg with their grandmother. - wash the car with dad - ride a bicycle and play ball.

No.	Family change		Samples of activities/game based on community circumstance
	Parents	Children	
6	<ul style="list-style-type: none"> - join in games that their child prefers. - more acceptance of the child's emotion - observe what game the child prefers and apply it to semi-structured activities 	<ul style="list-style-type: none"> - improved quality of relationship with mom. - express different emotions through their eyes. - use more gestures. 	<ul style="list-style-type: none"> - play balloon. - step on animal photos on a board together

Discussions

The pilot study investigated the effect of the community early intervention model based on the DIR/Floortime Concept on parents and the child with delayed development and special needs. 6 subjects participated in the study. The study demonstrated 2 main results. Firstly, all children substantially improved in functional emotional development, and all parents were less stressed in providing care. Secondly, all 4 children with developmental delay showed improvement in receptive and expressive language skills, but not the 2 autistic children. Our first finding was similar to the result of the PLAY project by Solomon. The PLAY project was an early intervention model based on the DIR/Floortime Concept. The randomized controlled trial of the PLAY project on 128 children with Autism spectrum disorders demonstrated significant improvement in functional emotional development and parent child interaction without increasing parents' stress. (Solomon, Laurie, Egeren, Melissa, Huber, & Zimmerman, 2014) Another similar study from Taiwan, applying home based intervention based on the DIR/Floortime Concept, asked the family to play (Floortime play) with the child for at least 10 hour/week, for 10 weeks. The findings showed increasing social interaction and adaptive behavior of the child. (Shu-Ting,

Yea-Shwu, Yung-Jung, Peichin, Shin-Jaw, & Ling-Yi, 2014). In Thailand, our findings complied with the research done by Pajareeya (2011), which found that training parents based on the DIR/Floortime Concept could help improve the autistic child's social emotional development. The parents also showed less stress. Research by Prissana Anjampa and Daranee Chanlar also showed improvement in autistic children's development after applying the DIR/Floortime Concept to the family. (Anjampa, 2011)(Chanlar, 2013). Our qualitative data, from the home visits and parents' records, showed parents' creativity in adapting play according to their materials and surrounding environment. Parents spent more time playing with their child. The relationship, love and bonding between parent and child had significantly helped to improve the child's emotional development, as stated by John Bowlby's On Attachment Theory. (Blum, 2004). The support group also reduced parents' stress and anxiety, increased their ability to face and solve problems, motivated them, increased their self-esteem, generated positive attitudes and enabled them to be more self-dependent (Marram, 1978). Our second finding on developmental skills, showed no improvement for both autistic children in DSI scores. This was partly due to the children's difficulties in maintaining attention in order to follow tasks. Also for language

measurement, we found that in the expressive language domain, the DSI measured only pointing behavior and verbal language, which may not show improvement in the autistic children over the 3 months' duration. We found that both autistic children showed improvement at the foundational level of communication skills, had more facial expression to express emotions, and more interactive gestures to solve problems. The language developmental skills findings were similar to the study done by Casehiser (...) where 51 children with ASD were randomized into 2 groups. The treatment group received social-interaction based intervention (MEHRIT), and the control group (CT) received traditional treatment in the community. The studied failed to find significant language improvement in the MEHRIT group using standardize language assessment (Casenhiser, Shanker & Stieben, 2013). Two years later, re-analyzation of the same data, using functional communicative act measures, showed the child in the MEHRIT group had made greater gains in social communicative acts, and greater functional communication in comparison to the CT group (Casenhiser, Binns, McGill, Morderer & Shanker, 2015). With respect to implications for practice, the results of this pilot study were useful for nurse practitioners in the community, in supporting the family of the child with delayed development and special needs. Nurse practitioners could provide knowledge and skills

of the home-based intervention program and facilitate a learning environment through group support and home visits. There were several limitations in this study. This was a single group design. The number of subjects was small. The parents participating in the study were willing to spend time with their child. This may not reflect the attitude of all families of children with delayed development in the community.

Further research, including randomized controlled trials, is recommended to determine the effectiveness of this community early intervention model.

Conclusions

This pilot study demonstrated preliminary evidence of positive results in implementing the Holistic Child Development Program in the community. The model emphasized parents' participation in promoting child development at home, and nurse practitioners working alongside parents to support a learning environment.

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