

Developmental Therapy – A Generic Professional Expertise within Child Development Centers in Bangladesh

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ABSTRACT

The Developmental Therapist (DT) is a unique professional training in occupational therapy, physiotherapy, and speech and language therapy. There is unmet demand for developmental therapists in Bangladesh to manage the increasing number of childhood disabilities. However, no academic institute provides training for Developmental therapists in Bangladesh. This paper explains a three-month structured training program for the exercise of the developmental therapist. After completing this training, the DTs gained some essential skills which help them to assess the functional development of children with neurodevelopmental disabilities, identify their problems and provide appropriate management.

Keywords: Developmental Therapy, Developmental Therapy Training, Child Development Center, Training Manual

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INTRODUCTION

Bangladesh is a country of 180 million people, and the child population of Bangladesh constitutes around 40%, according to UNICEF Bangladesh. Early neurodevelopmental disabilities are prevalent in Bangladesh. A disability detection survey in 2013 (Chandan, 2021) found that around 21.72% of children in its total population suffer from early childhood neurodevelopmental disorders, and many remain unrecognized of their neurodevelopmental disorders. To overcome the human cost of rehabilitation for disabilities, early recognition of neurodevelopmental and neurodevelopmental disabilities with appropriate and timely intervention is the only recourse (Jobayer et al., 2021).

Since 2008 the Directorate General of Health Services under the Ministry of Health and Family Welfare of Bangladesh has developed a country-wide plan of setting up Child Development Centers (CDC) within major tertiary care hospitals and district hospitals. To date, about 32 CDCs have been established. The multidisciplinary composition of the professionals providing service within the CDCs has been an important reason for their success as a 'one-stop' service for most children. They comprised a child health physician, a child psychologist, and a developmental therapist.

The Child Health Physician needs to be a medical graduate responsible for children's physical and neurological wellbeing; the Child Psychologist needs to have a master's degree in Psychology, a specialization in Developmental Psychology is preferred, and is taking care of children and their families mental wellbeing. The Developmental Therapist is responsible for the child's functional wellbeing.

In Bangladesh, there is no specialty educational institution for Developmental therapists. Developmental therapists are with master's degrees in Child Development and Social Relationships. They have theoretical knowledge about children's developmental milestones and a basic understanding of early intervention. A "generic" therapist is further trained in occupational therapy, physiotherapy, and speech and language therapy within a developmental framework (Khan et al., 2018).

This paper describes the contents of a three-month training program of an innovative generic professional of the three, the Developmental Therapist.

METHODS

The first CDC was established in 1992 within the Bangladesh Institute of Child Health, Dhaka Shishu (Children's) Hospital. Developmental Therapists emerged as the most influential single professional who could add to the expertise of the physicians and the psychologists when diagnosing a child and for intervention purposes.

The concept of the developmental therapist was generated with the objectives of:

1. To early identification of risk factors of childhood disabilities.
2. To provide early and comprehensive therapy sessions according to children's needs.
3. To reduce parental stress, saving their time and cost.

Training Method

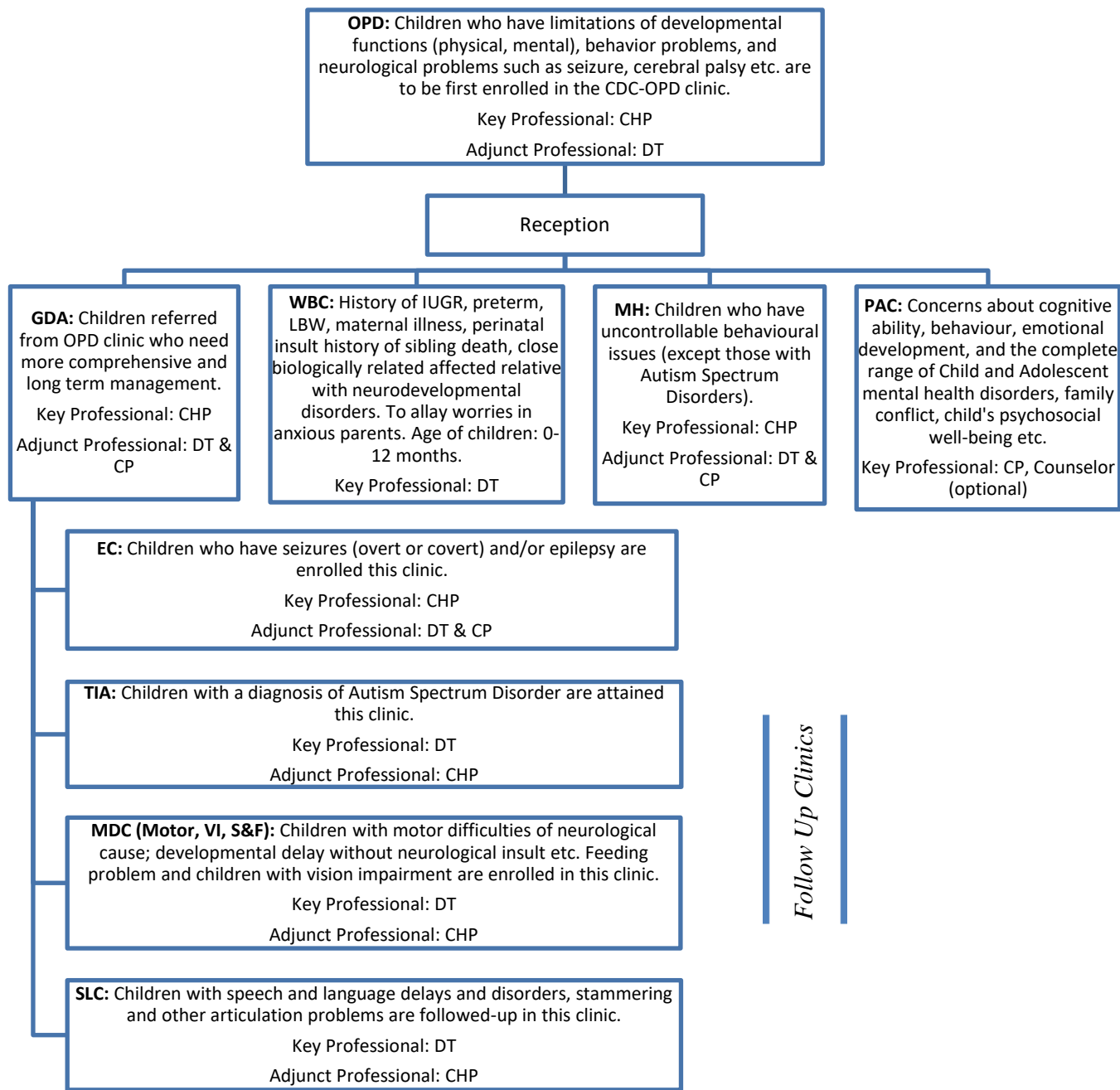
Over three decades of experience, the expertise designed the three-month structured training program for the Developmental therapists (DT). They will provide services to different Child Developmental Centers (CDC) across the country. Table 1. Presenting the content of 3- month training for developmental therapists, which were included the primary concept of CDC assessments based on children's functional neurodevelopment, delays, and disorders, which were adapted from the World Health Organization's International Classification of Impairments, Disabilities, and Handicap (WHO, 1980) and the World Health Organization's International Classification of Functioning (WHO, 1980) (WHO, 2001).

Table 1: Three month training Program for The Developmental Therapist (DT)

Month	Time	Activities
Months 1 and 2 (week 1-7)	8–9 am Case discussions	Discussion on cases seen the day before
	9 am–1:30 pm Clinical placements	OPD, IPD, GDA, WBC, nRNDA, SLC, MDC, TIA, LVC, DT, EC, CAMH
	1:30–2:30 pm Tutorials	Tutorials (Generic & specific).
Week 8	RNDA; 1 week 9 am-5 pm	Hands-on Training Workshop on Rapid Neurodevelopmental Assessment (RNDA) of children 0–16 years of age
Month 3 (week 9-10)	2 weeks	Visit different Child Development Centers (CDC)
week 11-12	2 weeks Field trips	Visit those organization who are working with children with Neurodevelopmental Disorders (NDDs) including autism.

Note. OPD = Out-Patients Department Walk-In Clinic; IPD = In-Patients Department, referrals of admitted children; WBC = Well Baby Clinic; nRNDA = Neonatal Rapid Neurodevelopmental Assessment Clinic; SLC = Speech, Language and Communication Clinic; MDC = Multiple Disabilities Clinic; TIA = Therapeutic Interventions for Autism Clinic; LVC = Low Vision Clinic; DT = Developmental Therapy Clinic; GDA = General Developmental Assessment Clinic; EC = Epilepsy Clinic; CAMH = Child and Adolescent Mental Health Clinic

Each day started with an in-depth discussion on the case based on cases seen the day before. It's an essential part of the training that helps the trainee to get in-depth knowledge about the limitation of the child and its management as well as the prognosis. Trainee DTs must attend different child development centers and clinics (Figure 1). This process involves observing children's functional development, their strength and difficulties, probable diagnosis according to an adapted version of the International Classification of Diseases (WHO, 1990), and evidence-based management practice.



Note: Child Health Physician (CHP); Child Psychologist (CP); Developmental Therapist (DT)

Figure 1: Internal Referral system within Child Development Center and eligibility criteria of Children of different clinics.

This training includes some generic and specific tutorials (Five introductory lectures; twenty-three generic tutorials; seven specific tutorials) (Table 2), which are developed based on the importance of applying validated tools, scales, and procedures. Consists of generic tutorials and lectures (for all three types of professionals) are generated based on the basic structure and functions of the brain and other parts of the nervous system; and, specifically, the neurobiology of the developing brain. In addition, specific tutorials focus on clinical services operated within a CDC that provide the theoretical and clinical bases to run a particular clinic.

Table 2: List of the Tutorials

Generic tutorials	Specific Tutorials
<p>Lecture: Epidemiology, Evidence Based Practice, Neurobiology, Neuroanatomy, Developmental Domains</p> <p>Tutorial: Parental stress reduction, Emotional Stabilization: Stabilization in Treatment of post traumatic disorders, Parent-Professional Partnership, Positive parenting, Child Protection, Play and Toy Selection, Child and Adolescent Mental Health (CAMH)-overview, Attention Deficit Hyperactivity Disorder (ADHD), Behavior Modification, Conduct Disorders, Oppositional Defiant Disorder (ODD), Cerebral Palsy, Activities of daily living, Normal feeding, Visual Impairment, Cortical Visual Impairment Pediatric Visual Diagnosis Fact, Autism Spectrum Disorder (ASD), Sensory Processing and Intervention, Working with children with speech, language and communication needs, Hearing impairment, Attention And listening, Normal Development, Early intervention.</p>	<p>Tutorial: Gross motor Function Classification System (GMFCS), Multiple Disability and Management, Movement of the joints, Assistive Device, Seating and Feeding, Dietary management, More Than Words (MTW) and other intervention strategies.</p>

One week, hands-on training in applying the Rapid Neurodevelopmental Assessment (RNDA) (rnnda-bd.org) is provided to the developmental therapist during these three months of training. RNDA is an assessment tool. Bangladesh Protibondhi Foundation, in collaboration with Dhaka Shishu Hospital (DSH), developed and validated this tool (Khan et al., 2013; Khan et al. 2014; Khan et al., 2010a; Muslima et al., 2016) for assessing neurodevelopmental functions of children ages 0–16 years. This training provides a comprehensive overview of normal development, delays, and disorders.

Last month of the training, trainee Developmental therapists (DT) visited different government, non-government, and private child development centers where they got the opportunity to work practically with the multidisciplinary professionals, especially developmental therapists, in a similar environment where they are supposed to work on. They also visit nationally recognized institutions (govt./ non govt.), inclusive and special school and rehabilitation centers (for vision or hearing impairment, motor difficulties, autism, and other mental health problems), urban and rural Community Based Rehabilitation (CBR) program for observing there a way of work and to get a comprehensive idea of common disorders leading to childhood disabilities, and their rehabilitation, education, and social implications. This helps them to expand their knowledge, and they get the opportunity to build networks with other health, education, and rehabilitation services. It also gives the trainee an idea of what kinds of support are available and 'best available practices' within our country and region. This process helps DT make individualized decisions when considering placements of the children beyond CDCs.

This entire training program is strictly monitored by the skilled trainers of the developmental therapist. They have a year of experience in working with children with disabilities within the Child Development Centers. Different national and international organizations train them (e.g., training of Speech-Language and Communication (SLC) and autism from great Ormond street hospital, UK; Multiple disabilities with Vision impairment from Perkins international school for the blind, USA and India; Applied Behavior analysis from Bangor University, UK). Sometimes international trainers come to Bangladesh and train the developmental therapist trainer (e.g., specialists from the UK, Australia, News land, and India). Trainers also have the opportunity to take supervision from the national and international experts.

Training Manual

Almost three decades of experience, Clinical Neurosciences Center (CNC), Bangladesh Protibondhi Foundation (BPF) Developed a "**Training Manual for the Establishment of Child Development and Disability services in Bangladesh**" (Editors in chief: Naila Z. Khan and Humaira Muslima; Co-editors: Razia Sultana, Asma Begum Shilpi, Nasrin Sultana, Bipasha Roy; <https://www.bpfbd.org/wp-content/uploads/2021/03/e-Manual.pdf>). This is a complete curriculum to train a core team of Child Health physicians, Child Psychologists, Developmental Therapists, and Administrative Staff towards establishing a Child Development Center (*Shishu Bikash Kendra* in Bangla) and disability services within hospitals and other similar health facilities.

Eight modules are included in this manual. Module 1 is the introductory module. **Module 2 comprises a set of 'generic' and 'essential' lectures for all professionals.** Modules 3, 4, and 5 include specific tutorials. Module 3 is meant for Child Health Physicians (CHPs), Module 4 for Child Psychologists (CPs), and **Module 5 for Developmental Therapists (DTs).** A comprehensive description of the responsibilities of the CDC administration is provided in Module 6; Module 7 describes the placements for every trainee outside the training center, and Model 8 is the annexures section.

DISCUSSION

Till 2018, approximately 109 Developmental Therapists are trained in the department of Pediatric Neurosciences in Dhaka Shishu (Children's) Hospital (DSH) under the supervision of Professor Naila Zaman Khan (*MBBS, FCPS, Ph.D. (London)*). After completing the 3-month intensive training program, the Developmental therapist is working in different Child Developmental centers and other disability-related services across the country and doing their job successfully. Of the total 500429 child attendances occurred in the various clinics of twenty-two CDCs including Government, Specialized, Non-Government and Private Hospitals, up to June 2017, 49.16% (n = 246,030) were first contacts. Of the 254,399 (50.84%) were follow-up clinic attendances, among them almost half of the visits were to the Developmental Therapy Clinic (48.36%)

The Developmental Therapist achieved some essential skills after finishing this training. Such as **(a)** do the functional assessment of children and able to identify the risk factors of childhood disability; **(b)** can identify children's functional strength and limitation; **(c)** able to apply standardized forms, test and tools, (e.g. **forms**: Developmental Therapy Form, forms of Gross Motor Function Classification System (GMFCS), Manual Ability Classification System (MACS), Communication Function Classification System (CFCs), Eating and Drinking Ability Classification System (EDACS), Seating and Feeding Form, How and Why Checklist, Therapeutic Intervention for Autism (TIA) Form, Sensory Assessment Form, Speech, Language and Communication History Form & Checklist; **Test and tools**: Rapid Neurodevelopmental Assessment (RNDA), Developmental Screening Questionnaire (DSQ) (Khan et al., 2010), Ten Question Plus (TQP) (Zaman et al., 1990), Parent Interview for Autism-Clinical Version (PIA-CV Bangla version), Distance Training Package (DTP) (McConachie et al., 2000); **(d)** able to provide individualized intervention strategies (e.g., range of motion, mobility, seating and feeding, nutrition and diet, activities of daily living) to the children with most common neurodevelopmental disorders with a range of comorbidities, including epilepsy, cerebral palsy, encephalopathies, cognitive and language difficulties, behavioral problem and autism; **(e)** know how to keep the record and analyze the data.

Developmental Therapists have been a part of lots of research through their clinical practice. For early identification of children's functional limitations and early intervention, DTs are performed RNDA (Khan et al., 2010) of every newborn discharged from the neonatal ward into the hospital. When developmental therapists followed up with a group of high-risk neonates at a non-profit children's hospital in Dhaka, significant functional improvement occurred (Banu et al., 2015). Considerable advances have been observed in the overall communication level and daily living activities in a cross-sectional study of an early intervention program for children with Autism within CDC at DSH (Begum et al., 2013).

The developmental therapist follows a low-cost and low-technology intervention program in seating and feeding clinic to improve the feeding practices of care giver of children with moderate-severe cerebral palsy and feeding difficulties. Significant improvements in several areas were observed at follow-up (Adams et al., 2012).

"Epidemiological Survey of Neurodevelopmental Disorders and Autism, 2013" (DGHS Survey, 2013) found that of the 39 per 1,000 children with expressive language difficulties. The increasing number of children with language difficulties suggest that Speech and language clinic is one of the most demandable clinical services of CDC, which developmental therapist mainly runs. Significant improvement in comprehension and expressive language status showed between the first and last visit ($p= 0.000$) when a retrospective study was conducted in the child development center of Dhaka Shishu (children's) hospital (Shilpi et al., 2021).

Outreach Program

Developmental Therapists are not only attending the child developmental centers' clinics; they are also a part of other research and survey outside the CDC. Such as, they have been worked with pregnant mothers in a Climate Refugee (CR) camps of Dacope Upazilla within the Khulna district to assess the neurodevelopment of children born to Climate Refugee (CR) -mothers (i.e., cases) compared to those born to their Non-Climate Refugee (NCR) mother (i.e., controls) and significant differences of children's neurodevelopment were found (Khan et al., 2016). The developmental therapists have been worked with displaced Rohingya children in the refugee camps in Bangladesh to identify at high risk for mental health problems and found that these children were suffering significant emotional symptoms and peer problems (Khan et al., 2019).

Monitoring and Evaluation

The National Coordination team visits the Child Development Centers (CDC) at least once a year to evaluate the training outcome. A confidential assessment of performance (e.g., their Assessment & Intervention procedure, follow-up protocol, Referral system, placement of children outside the CDC, Record Keeping, behavior communication with the child and their families, Networking with other organizations, teamwork, etc.) of each multidisciplinary team

member are included in this visit. In addition, the evaluation team identified the strength and limitations of each CDC and organized refresher training accordingly. In addition, the Developmental Therapists have maintained a log book for the follow-up visits. In addition, the National Coordination team, especially the trainer of the developmental therapist, undertakes a monthly review and discussion of process data with each DT.

Supervision: Each DT has the opportunity to discuss with their trainer or their peer over the phone or email if they face any problems regarding the assessment and management of children. Development Therapists can send videos of their clinical practices for feedback to the trainer.

Limitations: The training content of the developmental therapist comprises tutorials, lectures, hands-on practice, placement, field visits, etc., which is vast, and three months is not adequate to cover all the elements efficiently.

As this is hands-on training, it is challenging to accommodate many trainees at a time.

Future Plan: Government College of Applied Human Science is trying to start a Master's program in Developmental Therapy with the affiliation of Dhaka University, Bangladesh. They have already submitted their operational plan and curriculum to the Ministry of Education for approval.

At the same time, Chittagong University, Bangladesh, will start a one-year Diploma in development therapy.

CONCLUSION

After completing this three-month training program, DTs have proven their ability to identify the risk factors of childhood disability, do functional assessments of children, and plan and provide intervention.

Which plays an important role for the development of innovative human resources. The practical and holistic approach toward the child's functional limitation and individualized intervention strategies highlights the need for the Developmental Therapist, mainly in low and middle-income countries. Moreover, this technique will help reduce parental stress and save time and cost as this training is very cost-effective. Therefore, adopting this training at the mass level will improve local human resources and ensure better management of children with disabilities.

Even though the efficiency of the DTs improves significantly with this training, the period of three months is not adequate. Therefore, the DTs' professional training (diploma/certificate program) would greatly help the cause.

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